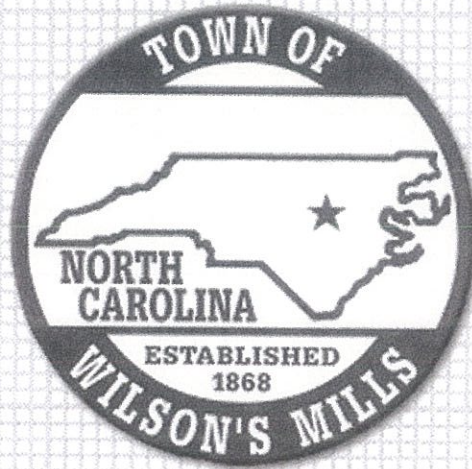


CAPITAL IMPROVEMENTS PLAN TOWN OF WILSON'S MILLS

December 2009

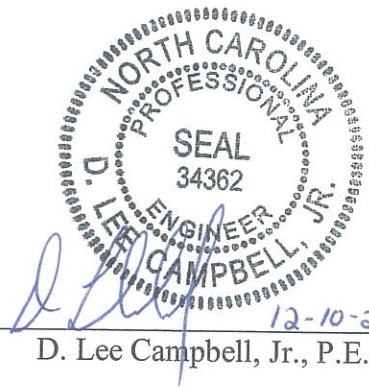


THE WOOTEN COMPANY

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TOWN OF WILSON'S MILLS
CAPITAL IMPROVEMENTS PLAN

December, 2009



D. Lee Campbell, Jr. 12-10-2009
D. Lee Campbell, Jr., P.E.



THE WOOTEN COMPANY
ENGINEERING PLANNING ARCHITECTURE

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Appendix C – Sewer System Mapping

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GOAL STATEMENT

This Capital Improvements plan will be a planning tool for the Town of Wilson's Mills. In addition, the information provided should be a benchmark reference document by which the Town can measure progress. It will be used to help support future grant and loan applications as the Town begins to implement the individual projects. Finally, the following Capital Improvements Plan represents a vision of the Town's future and will guide local leaders and volunteers in appropriate, planned growth to better serve the needs of its citizens.

1 DESCRIPTION OF PROJECT AREA

1.1 Demographics

The 2008 census indicates the population of Johnston County as 163,428. This is approximately a 29 percent population growth since 2000. The 2008 census for the Town of Wilson's Mills is 1,598, which is approximately a 23 percent growth since 2000. The North Carolina Office of State Planning (OSP) has projected a 34.6 percent growth rate for Johnston County from 2010 to 2019, and 23 percent growth from 2020 to 2029. If Wilson's Mills follows a similar growth pattern as the County, which it has historically done, the population in Wilson's Mills for 2020 would be 2,151, and in 2030 would be 2,646 people.

In terms of percent growth, Johnston County was the fifth fastest growing county in the state of North Carolina between the years of 2000 and 2008. This is due in large part to factors such as proximity to the Triangle Area of Raleigh, Durham, and Chapel Hill, access to Interstates I-95 and I-40 that make transportation easy, and lower costs of living than nearby Wake County.

The median household income in 2007 for North Carolina was \$44,772.00. The median household income for Wilson's Mills was \$49,762.00. Information from

U.S. Census Bureau indicates that 9.4 percent of families within Wilson's Mills are below poverty level.

1.2 Land Area Configurations

The topography of the Town of Wilson's Mill ranges from gently sloping to slopes of approximately 8 percent, with elevations ranging from 140 feet to 260 feet above sea level. The majority of the soil types are considered native to the Coastal Plain Region.

1.2.1 Hydrography

The Town is located just west of the Neuse River, and local streams, ditches, and storm drainage ultimately discharge to the Neuse River. The Town has several unnamed tributaries that are USGS "blue line" streams that are buffered, meaning that restrictions exist for how close structures are located or construction activities can take place to the stream. A USGS Quad map of the area is attached as Figure 1 in Appendix A.

1.2.2 Soils

According to the Soil Survey of Johnston County (1994), the predominant soils in the Wilson's Mill Area consist of Appling-Marlboro, Goldsboro, Marlboro, Norfolk, Rains, and Toisnot. A soils map is included as Figure 2 in Appendix A.

2 EXISTING FACILITIES

2.1 Wastewater System

The Town currently has no wastewater treatment facility that serves the town as a whole. For wastewater disposal, the majority of the town is served through individual waste treatment systems (i.e., septic systems). These systems are monitored by the Johnston County Health Department.

In surveys of existing septic systems conducted over the last 10 years, Johnston County Health Department personnel found concerns with the surveyed properties that included the following:

- Many septic systems were constructed in excess of 30 years ago
- Construction methods were dated to practices 30 years ago and standards have changed since the time of installation of septic systems
- Lack of system repair space due to small lot sizes and soil types in the area are classified as having severe limitations for repairs
- Site damage in areas over septic drain fields including pools, out-buildings, etc.
- The location of existing private wells limit available space for septic tank repairs, particularly along Mitchner Drive
- Four properties were classified as failures due to straight pipes discharging gray water and/or obvious discharge, and nineteen properties were classified as having a threat of imminent septic failures

A map showing the findings of the septic tank evaluations is included in Appendix B.

It should be noted that although the Town is aware of a number of septic tank failures and gray water straight piping instances, residents may have been unwilling to truthfully share this information with representatives from Environmental Health for fear of possible violations.

A survey of 193 residences was conducted in 2001. The study represented one of the Town's attempts to analyze the extent of septic failures throughout the town limits. Northwood Subdivision and Family Drive were areas included in both the current survey and the 2001 study, illustrating the need for a comprehensive study and evaluation of the Town's capital needs.

More recently, new subdivisions, including Lockwood Forest and Ives Landing, have been constructed within the Town limits that have installed septic systems in accordance with current state and local standards. Thus, these septic systems should be in adequate condition for the foreseeable future.

2.2 Wastewater Collection

Johnston County currently owns a single existing gravity sewer line in Wilson's Mills that extends to the intersection of Harrison and Fire Department Roads, and extends approximately 2,300 linear feet along Fire Department Road, and then approximately 2,600 more linear feet through an outfall easement to a pump station near U.S. Highway 70. The sewer is 12-inch diameter, constructed of PVC. The line was installed in 2007 as part of The Knolls at the Neuse subdivision project. The subdivision has a pump station with 4" force main that pumps into the gravity line discussed here. The line flows to a wastewater pump station that pumps back into the Johnston County sewer system.

A 12-inch sewer laid on minimum grade (0.22%) has a hydraulic capacity of nearly 600 gallons per minute (0.864 MGD). This capacity is adequate to serve as a main collector sewer line for the town now and in the future. The Town would currently be expected to have a flow of approximately 138,000 gallons per day. Using the population projections discussed above, a population increase of approximately 65% is expected over the next 20 years, and the wastewater would increase accordingly to approximately 264,000 gallons per day. This is well below the capacity of the existing sewer components.

2.3 Water System

The county water system extends throughout the Town of Wilson's Mills. Johnston County Public Utilities owns and maintains all public water lines. Customers are billed directly by Johnston County for their water service. The Town currently has no plans to own or maintain a water system in the future as the entire Town is currently served by the County and this service is adequate for current population and the projected future populations.

2.4 Town Hall

The Town currently uses a single building that is 2,320 square feet in size to house all of its departments, including Administration, Police, Planning/Zoning,

and the Town Council Chambers. The available space is not adequate, as employees routinely use hallways for work space. The Town will see some relief as plans for a new Community Center that will house the planning department is scheduled to begin construction in 2010. As the Town experiences the growth discussed above, additional town personnel will likely be required to assist with town operations. Additional space, beyond what is already needed, will be required.

3 RECOMMENDED IMPROVEMENTS

3.1 Sewer System Extension

In a Community Plan report published by the North Carolina Department of Commerce in December, 2006 residents and Town leaders provided input to what they thought was important for the town to grow. The top priority on that list was to provide sewer service within the Town. As previously stated, the majority of the existing septic systems that serve the Town are a minimum of 30 years old, and not constructed by today's standards. A new sewer system would improve the ground water and surface water quality in the area which is in close proximity to the Neuse River. Some of the local soils in the area are not ideal for wastewater treatment, and repair areas do not exist for a large portion of existing septic systems. When failures occur, untreated wastewater may runoff into nearby surface waters, causing pollution. Additionally, a central sewer collection system would provide a basis for new development that would allow the system to be extended for sewer service in lieu of constructing additional septic systems that eventually may fail.

In 2001, a Wastewater Collection System Preliminary Engineering Report was completed for the Town by The Wooten Company. In this report, it was determined that a conventional system consisting primarily of gravity sewer service, in conjunction with sewer pump stations and force mains, would best serve the Town. This was deemed a better solution than a pressure system

consisting of individual service pumps at each house due to high cost of maintenance associated with a pressure system.

The system proposed in the 2001 report has been reviewed and modified as necessary to serve new subdivisions that were not yet in place at the time. Also, one of the pump stations in operation in 2001 has been relocated, with gravity sewer being extended from the old pump station to the new pump station near U.S. Highway 70 as discussed previously. The total length of gravity sewer necessary to serve the majority of the parcels is approximately 99,900 linear feet. This includes 5,500 linear feet of 12-inch gravity sewer, with the remainder being 8-inch gravity sewer. In addition to the gravity sewer, a total of four sewer pump stations will be necessary due to the existing topography. The wastewater collected at these pump stations will be pumped through force mains to the gravity system. The size of the stations will likely be small in nature (less than 180 gallons per minute) with the force mains ranging in size from 4 to 6-inch in diameter. The sewer system layout is shown on the proposed sewer map in Appendix C. Total estimated project cost for the system is \$8,426,200, which includes engineering and contingency. A detailed cost breakdown is shown in Appendix E. Note that this pricing is based on 2009 pricing and will need to be adjusted

Wilson's Mills does not have a large population, however the Town is spread out geographically. Therefore, a large quantity of gravity sewer is required to serve all of the parcels. It should be noted that while gravity sewer and sewer pumping stations are the primary collection system, the Town may choose to serve some outlying parcels with an individual service pump, or take over maintenance of the homeowner's septic system. This allows the town to provide equal service to all residents where it is not economically feasible to extend gravity sewer to a parcel.

3.1.1 Phasing and Regionalization of Sewer System

The proposed sewer map in Appendix C of this report shows the entire sewer system at its buildout completion. In order to make the construction of the sewer more feasible for the Town, it will likely be constructed in phases. Separating the project into three phases of roughly equal amounts would yield three projects of approximately \$2.5-3 million each.

The first phase would extend sewer to the older portions of Town where septic tank failures have been most prevalent. This would alleviate environmental issues caused by the failing septic tanks. This extension would make use of the existing outfall sewer line previously discussed in this report. The second phase would be to extend sewer to business districts and additional older neighborhoods. This would help the Town to provide sewer to potential businesses, helping economic development. The third and final phase would be to extend sewer to newer subdivisions, and to relieve the existing sewer pump station located near U.S. Highway 70 and Swift Creek Road. This phase would provide service to all current residents, and ease some operation and maintenance by eliminating a pump station.

The Town of Wilson's Mills has had discussions with Johnston County regarding maintenance of the sewer system. The Town is willing to fund the system, then transfer ownership over to the County for operation and maintenance. This is logical since the County owns and operates the water system in Town as well as the existing sewer line previously discussed, and has the personnel to handle the operation and maintenance of the Town's system. The County has previously agreed to this type of arrangement, but this will need to be revisited prior to moving ahead with the sewer project.

3.2 New Town Hall

The second need identified by Town leaders is a new Town Hall. The Town has already outgrown the space it currently has, as documented above. Town staff regularly use hallways as work areas, and any new staff would not have adequate space to work. As previously mentioned, the Town will soon be constructing a

new community facility which will house the Parks and Recreation department, and serve as a recreation facility for citizens of Wilson's Mills.

The new Town Hall would house the Administration, Planning, and Utility Billing departments, as well as the Town Council Chambers. The existing Town Hall could then be renovated to house the Police Department. Based on population of the Town, and expectant growth rate, a facility with approximately 4,000 square feet is adequate to serve the town to meet these needs.

Current construction prices would indicate a price of up to \$150 per square foot, or \$600,000, for a new Town Hall. This price is for the building and site work, but does not include furniture, computer servers, or the land purchase. The total cost for the new Town Hall with all other needs is estimated at approximately \$1,000,000 using 2009 construction prices.

3.3 Recreation Facilities/Parks

The Town of Wilson's Mills is placing an emphasis on providing parks and recreation centers for its citizens. Currently, the only athletic fields in Town are located at Wilson's Mills Elementary School. These fields are owned by Johnston County Schools.

The Town has plans to provide facilities for a new small park adjacent to the new Parks and Recreation building. This new park will have amenities such as a shelter with picnic tables, small walking trail, and playground equipment. The Town also wishes to provide larger recreation facilities which may be a place for activities such as baseball, softball, soccer, volleyball, tennis, walking trails, and other various recreational activities. A recreational facility that can support these types of activities may require up to 35 acres of land. The Town has expressed the possibility of splitting this larger facility to two sites, placing recreation facilities on each side of Town, allowing for easier access for the citizens. The exact location of such facilities would ultimately be determined by where the Town is able to purchase enough land to accommodate the facility.

A large park facility, or two facilities that contain all of the activities the Town would like to provide, is a high cost project, largely due to land acquisition costs on top of the necessary construction and equipment costs. Using Johnston County tax data, land values for vacant land in the area average around \$5,500 per acre, meaning land acquisition costs may be around \$200,000. Construction for similar facilities has been bid in the past 3 years for an approximate cost of \$3,000,000, so a project of \$3 to \$4 million is a reasonable estimate. Breaking the project into phases may help the Town to get started on this type project. An example of a phased approach would be if the facilities are to be split on each side of Town to only construct one set of facilities and then add the other side later.

3.4 Sidewalks and Street Lights

Sidewalks allow pedestrians to move from place to place, and help create a sense of community. This allows for people to have access to parks, businesses, neighbors, and services without the use of their cars. Currently, the Town does not have sidewalks on any of their streets. Nearly all successful downtown and business districts have sidewalks. The Town of Wilson's Mills may be able to benefit by providing this alternative method of movement for citizens.

The Town has identified strategic areas where they desire to begin sidewalk construction for the Town. These areas have been shown in phases on a map attached in Appendix D. The phases generally start around the downtown district with the Town Hall, and move outward to residential communities from this area. The Town has identified approximately 37,500 linear feet of sidewalks to be constructed among all phases. The estimated construction costs for the construction of all sidewalks is \$2,500,000.

Another consideration with sidewalk is whether to add curb and gutter to existing streets. Without curb and gutter, sidewalks must be placed on the back side of ditches, away from the road. This can lead to the acquisition of several easements through the sidewalk corridor. In some cases the roadside ditch may not be deep enough to adequately protect the pedestrian from an automobile and thus, curb

and gutter may be warranted in this situation. While curb and gutter may be more expensive, it generally allows for a more standard and uniform cross section of the street with new sidewalk. Adding curb and gutter to a project can increase costs by a factor of 2.5. This is not only due to the curb and gutter, but also the storm drain piping and catch basin structures associated with this type of drainage system.

There are currently seven (7) existing street lights within the Town limits. The Town desires to add to the street lighting system in a phased approach as shown in Appendix D. The streetlights aid in pedestrian and motorist travel, and may provide a sense of security for residents traveling at night.

The proposed street lights will be added with a new phase planned for every 2 years. Phase 1 includes the addition of nine (9) street lights located mainly at intersections in the Town. The improvements for Phase 2 and Phase 3 include the addition of six (6) street lights for each phase. Street lights will be on a lease agreement with the local electrical service provider, currently Progress Energy. The standard length of lease is 10 years, with monthly costs ranging from \$7.00 to \$30.00 per light per month depending on the style of lighting chosen. There are also initial costs involved, up to approximately \$200.00 per installation, but these can be rolled into monthly lease costs. With the full build out of 21 poles mentioned in this report, that would be initial costs of \$4,200, and then assuming \$30.00 per month each, a total of \$630 per month, or \$7,560 per year.

In order to provide safe sidewalks, the Town plans to incorporate street lights at the same time as sidewalks. This is logical to make the sidewalks safer after daylight hours, and also can help ensure poles are not in the way for sidewalk or curb and gutter construction.

3.5 Flooding

There are three areas that currently have flooding issues. The first area is a ditch located behind properties that front the north side of Main Street in a residential

area. The second area is near Antler Drive. This area had an old farm pond that was filled in. The surrounding properties have experienced problems since the pond was filled in. The final area is a blue line stream between Southerland Road and Country Valley place. The stream sometimes spills over the banks, causing flooding to surrounding properties.

A flood study or assessment would need to be developed in order to identify the causes and possible solutions for the flooding described above. In the meantime, simple solutions such as cleaning out the debris and trash from ditches or possibly increasing the existing storm culvert size could be explored.

4 Project Funding Sources

In order for the Town to achieve the goals of adding infrastructure and facilities described in this plan, the Town will likely need to pursue opportunities to receive grants and low interest loan money. Several state and federal agencies exist that are able to assist small towns, such as Wilson's Mills, with funding projects such as these presented herein.

Below is a list of different potential funding sources that may be able to provide assistance. These funding agencies have different requirements about when the applications for funds are to be submitted and thus, it is important that these submittal deadlines are researched and accounted for when planning the project timeline. It should be noted that utilizing a combination of the funding agencies may be beneficial to consider in achieving the goals.

4.1 USDA

Different agencies are available to fund different needs. The Town's primary and most costly need, a sewer system, could be eligible for funding from several sources. The United States Department of Agriculture can provide loans with 40 year terms and low interest rates. USDA has a Rural Development branch which funds rural communities with populations of less than 10,000 people. They provide funding for water and sewer system improvements as well as community

facilities such as town halls, police stations, and fire stations. Often the funds can be awarded in loans and grants to further assist the Town in the project financing. At this time, it does not appear that the Town of Wilson's Mills would qualify for grant funding through USDA due to its higher than average Median Household Income (MHI). This MHI figure also affects the interest rate available for payback on a loan from USDA.

4.2 NC Rural Center

The North Carolina Rural Center currently provides grants of up to \$500,000 for water and sewer needs through their Supplemental Grants program. This program would require the Town to provide a certain percentage of matching funds, currently \$0.50 on the dollar (which may come from other funding agencies). The money for the Rural Center to award may be appropriated by the North Carolina General Assembly each year. The Rural Center funds are typically used to serve as supplemental funds to water and sewer project where a "need" can be documented (e.g., failing septic systems).

4.3 Construction Grants and Loans

The Construction Grants and Loans section of the North Carolina Division of Water Quality has loan and grant programs specifically for sewer. These programs include the Clean Water State Revolving Fund (SRF), State Loan and Grant Program, and State and Tribal Assistance Grants (STAG).

The SRF program is money awarded to applicants based on an annual priority list. The money is primarily provided by the federal government and administered by the state. Written requests must be sent to the Construction Grants and Loans section to be placed on the priority list. The money is generally loaned at half of the market rate, on a repayment period of 20 year terms.

The State Loan and Grant Program is money that is appropriated by the state legislature, and the program may not always have money available. The terms are

similar to the SRF program in the loans are half the market interest value, typically 20 years in length.

The STAG program is a project identified as a “special needs” by an appropriations committee in Congress. The funds are from the federal Environmental Protection Agency. The grants are generally limited to 55% of the eligible project cost. The match may be awarded through another agency, or through an SRF loan.

4.4 CDBG

A Community Development Block Grant, administered through the North Carolina Department of Commerce, can be obtained to fund neighborhood revitalizations, and extend water and sewer to serve a targeted business. This is a grant program, and for neighborhood revitalization, requires that residents be low and moderate income. Due to the low and moderate income requirements, this funding may only be a resource for particular areas of Town. This could be a good source for sidewalk projects in such areas.

4.5 Clean Water Management Trust Fund

Clean Water Management Trust Fund grants are awarded by the State to restore water quality in the State’s 17 river systems. This includes storm water treatment, sewer rehabilitation, and riparian buffers purchase or restoration among other items. This would be a possible source of funds to alleviate the water quality concerns associated with the failing or problematic septic systems (i.e., construction of a new Town sewer system).

4.6 Parks and Recreation Trust Fund

This money is awarded through the North Carolina Division of Parks and Recreation, and is a grant that can be used for the purchase of land or construction of parks on existing land. This is a grant program that requires a dollar for dollar

match from the Town. The match can be in the form of a cash funds match, or in land donated to the Town.

5.0 Timeline

The projects discussed in this document are not feasible to complete immediately, nor is it feasible to complete the projects simultaneously. The Town has provided input to this document about the priority of their needs. As previously stated, the sewer system is the Town's primary need. A Town Hall, sidewalks and recreation facilities are all needed as well. In order to assist the Town in planning, and to provide a goals "checklist" to measure progress in the Town, a schedule for the work discussed in this report is provided on the following page in Figure 1. This schedule outlines work to be done in Town over the next 30 years, with specific year by year goals listed for the first six years. It will be important for the Town to aggressively pursue funding opportunities in order to have adequate funds to complete these projects.

Figure 1: Capital Outlay Schedule

DESCRIPTION OF EXPENDITURES	PLANNING PERIOD						
	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-30
Design of Sanitary Sewer, Phase I	\$ 160,000						
Construction of Sanitary Sewer, Phase I ¹		\$ 2,951,600					
Design of Sanitary Sewer, Phase II					\$ 137,160		
Construction of Sanitary Sewer, Phase II ¹						\$ 2,662,040	
Design of Sanitary Sewer, Phase III			\$ 122,190				\$ 122,190
Construction of Sanitary Sewer, Phase III ¹							\$ 2,208,210
Design & Construct Phase 1 Sidewalks ²			\$ 350,000				
Design & Construct Phase 2 Sidewalks ²				\$ 350,000			
Design & Construct Phases 3 - 7 Sidewalks ²							\$ 1,750,000
Design Town Hall					\$ 75,000		
Construction of Town Hall						\$ 1,000,000	
Recreation Center, Phase 1							\$ 1,750,000
Recreation Center, Phase 2							\$ 1,750,000
TOTALS	\$ 160,000	\$ 2,951,600	\$ 472,190	\$ 350,000	\$ 212,160	\$ 3,662,040	\$ 7,580,400

Notes

¹ Costs for Construction of Sewer includes contingency, easements, construction administration & observation, and sewer assessment fees

² Costs assume that sidewalks will be built without curb and gutter

All prices assumed for bid in 2010

An additional item that does not appear in the capital outlay schedule above is updating this Capital Improvements Plan. While the schedule for work provided

herein is a goal for the Town, many factors may cause the schedule to change. Factors may include funding opportunities that arise, or opportunities that are not funded in a given fiscal year. Updating this document will allow the Town to use this document as a device for measuring progress as well, and serve as a reminder of projects that need to move forward. These thoughts should help the Town to keep their energy focused on aggressively pursuing the funding opportunities discussed.


This document should prove useful to funding agencies that the Town of Wilson's Mills is ready and eager to provide the services and amenities for its residents that will allow for controlled development and growth in the future as well as addressing the water quality issues currently facing the Town.

Appendix A – USGS, Soils, and Flood Maps

TOWN OF WILSON'S MILLS

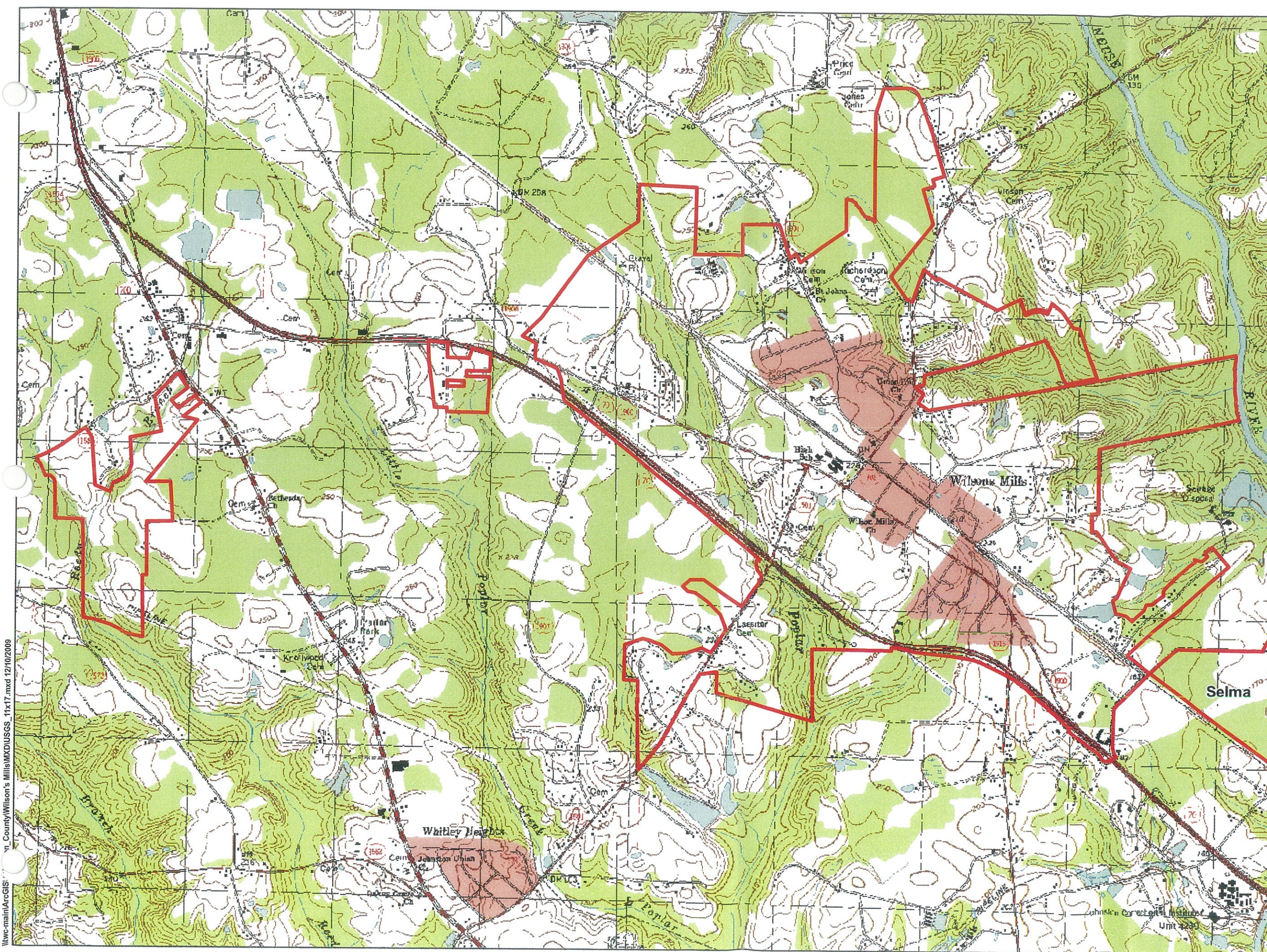
USGS
TOPOGRAPHIC MAP
(POWHATEN & SELMA)



 City Limits







1 inch = 2,000 feet

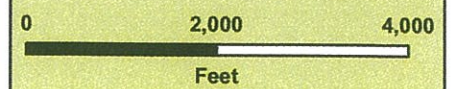


TOWN OF WILSON'S MILLS

ENVIRONMENTAL FEATURES MAP



-  Soils
-  City Limits
-  US Route
-  Centerline



1 inch = 2,000 feet



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TOWN OF WILSON'S MILLS

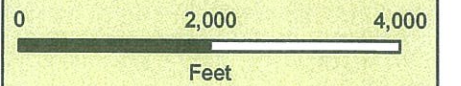
FLOODPLAIN FEATURES MAP



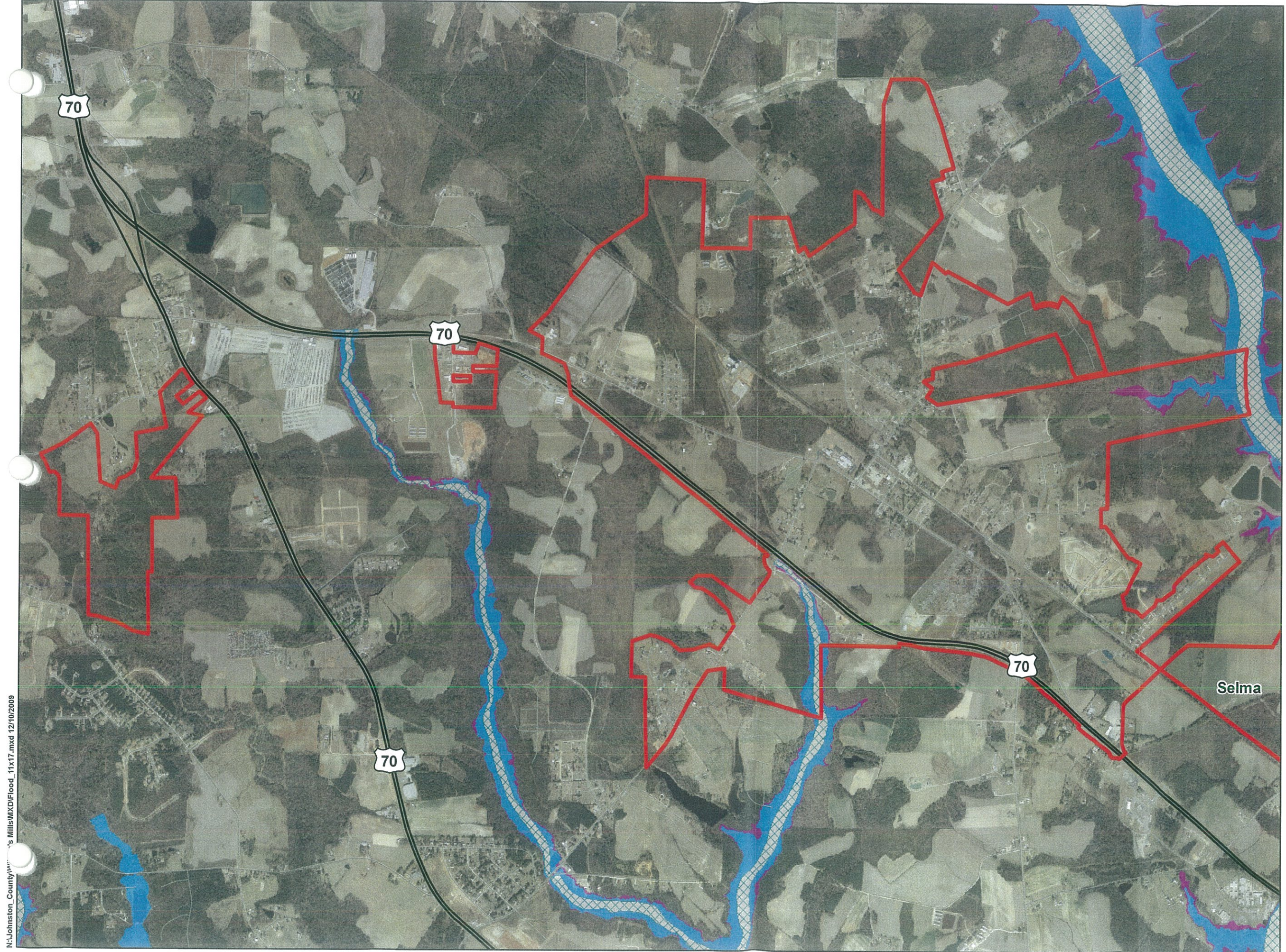
NC Flood Mapping Program

Flood Zones

- 0.2 PCT ANNUAL CHANCE FLOOD HAZARD (500 Year Floodplain) - Purple shaded area
- AE (100 Year Floodplain) - Blue shaded area
- AE (Floodway) - Blue area with a white cross-hatch pattern
- City Limits - Red outline
- US Route - Thick black line
- Centerline - Thin grey line



1 inch = 2,000 feet



N:\Johnston_County\Wilson's Mills\MXD\Flood_11x17.mxd 12/10/2009

Appendix B – Septic Survey Map

SEPTIC TANK SURVEY

Town of Wilson's Mills

Johnston County, NC

September 9th, 2009



Legend

Sewer Features

Proposed

- Proposed Pump Station (PS)
- Temporary PS
- 2" Force Main (FM)
- 4" FM
- 4" FM Temporary
- 8" Gravity Sewer
- 12" Gravity Sewer

Existing

- Existing PS (County)
- Existing PS (Wilson's Mills)
- 4" FM
- 6" FM
- 8" FM
- 12" FM
- 8" Gravity Sewer
- 12" Gravity Sewer

Septic Tank Survey Result (See Table Below)

- 1A
- 1A and 1B
- 1A and 1B and 2
- 1A and 1B and 3
- 1B
- 1B and 2
- 2
- Straight Pipe
- Sample Location

- City Limits
- Parcel
- US Route
- Centerline

Result	Description
1A	Septic Tank Failure Due to Soils
1B	Undersized Lots - No Repair Area
2	Threat of Eminent Failure
3	Visual Evidence of Surfacing



1 in = 500 feet



N:\Wake_County\ Raleigh\city_limits_study\Area Brimco\Septic_Tank_Survey_24x36_rev_080909.mxd 9/9/2009

Appendix C – Sewer System Mapping

PROPOSED SEWER Wilson's Mills

Johnston County, NC

September 2, 2009

Legend	
Sewer Features	
Proposed	
	Proposed Pump Station (PS)
	Temporary PS
	2" Force Main (FM)
	4" FM
	4" FM Temporary
	8" Gravity Sewer
	12" Gravity Sewer
Existing	
	Existing PS (County)
	Existing PS (Wilson's Mills)
	4" FM
	6" FM
	8" FM
	12" FM
	8" Gravity Sewer
	12" Gravity Sewer
Other Features	
	Wilson's Mills
	Selma
	Parcel
	US Route
	Centerline
	2' & 4' Contour
	20' & 100' Contour



THE WOOTEN COMPANY
ENGINEERING PLANNING ARCHITECTURE

1 in = 500 feet

0 500 1,000
Feet

Johnston County/Wilson's Mills/Proposed Sewer_25446_rvw.mxd 10/17/2009

Appendix D – Sidewalk and Streetlight Map

PROPOSED SIDEWALKS & STREET LIGHTS

Wilson's Mills

Johnston County, NC

October 12, 2009



Legend

Proposed Sidewalk

Phase

- 1 - Blue dashed line
- 2 - Yellow dashed line
- 3 - Red dashed line
- 4 - Pink dashed line
- 5 - Purple dashed line
- 6 - Green dashed line
- 7 - Brown dashed line

Proposed Street Light

Proposed Street Light

- Phase I - Blue diamond
- Phase II - Red diamond
- Phase III - Purple diamond

Other Features

- Existing Street Light - Black diamond
- Wilson's Mills - Brown shaded area
- Selma - Grey shaded area
- Parcel - Thin black outline
- US Route - Thick black line with '70' shield
- Centerline - Thin black line



1 in = 800 feet

0 800 1,600 Feet

N:\Johnston_County\Wilson's Mills\KOD\Sidewalk_Street_Lights_Map_24x36.mxd 10/12/2009

Appendix E – Sewer System Cost Estimates

**Wilson's Mills Capital Improvements Plan
Sewer System Improvements
Wilson's Mills, North Carolina**

THE WOOTEN COMPANY

**TWC No. 2875-K
12/8/2009**

DESCRIPTION		UNITS	TOTAL QUANTITY	UNIT COST	EXTENDED COST
<i>Sewer Project</i>					
1	8" PVC Sewer Pipe, Depth 0'-12'	LF	82,200	\$ 27.00	\$ 2,219,400.00
2	8" PVC Sewer Pipe, Depth 12'-20'	LF	10,800	\$ 41.00	\$ 442,800.00
3	12" PVC Sewer Pipe, Depth 0'-12'	LF	5,500	\$ 50.00	\$ 275,000.00
4	4' Dia Manhole, Depth 0'-12'	EA	351	\$ 1,900.00	\$ 666,900.00
5	4' Dia Manhole, Depth 12'-20'	EA	43	\$ 3,200.00	\$ 137,600.00
6	Grinder Pump Station (50 gpm)	EA	1	\$ 125,000.00	\$ 125,000.00
7	Sanitary Sewer Pump Station (80 gpm)	EA	3	\$ 225,000.00	\$ 675,000.00
8	2" PVC Force Main	LF	5,200	\$ 5.00	\$ 26,000.00
9	4" PVC Force Main	LF	9,400	\$ 8.00	\$ 75,200.00
10	16" Steel Encasement Pipe with 8" DI Sanitary Sewer Main	LF	1,400	\$ 175.00	\$ 245,000.00
11	4" Sanitary Sewer Service-Same side of road as sewer main	EA	189	\$ 575.00	\$ 108,675.00
12	4" Sanitary Sewer Service-Opposite side of road as sewer main	EA	189	\$ 1,000.00	\$ 189,000.00
13	Connection to Existing Manhole (core drill)	EA	12	\$ 1,300.00	\$ 15,600.00
14	Wetland/Creek Crossing	LF	425	\$ 200.00	\$ 85,000.00
<i>Miscellaneous</i>					
15	Driveway Repair	SY	4,000	\$ 40.00	\$ 160,000.00
16	Erosion Control (1.5% of Construction Cost)	LS	1	\$ 84,000.00	\$ 84,000.00
17	Rock Excavation	CY	2,000	\$ 50.00	\$ 100,000.00
18	Asphalt Pavement Patch	SY	1,000	\$ 42.00	\$ 42,000.00
19	Undercut of Unstable Soils for Pipe Foundation	CY	2,000	\$ 25.00	\$ 50,000.00
20	Surface Course/Overlay (Type SF9.5A)	SY	1,000	\$ 10.00	\$ 10,000.00

Estimated Construction Cost \$ 5,732,175.00

Contingency (10%) \$ 573,130.00

Engineering (15%) \$ 859,695.00

Easement Acquisition (including survey & mapping)² \$ 354,000.00

Sewer Assessment Fees (\$2,400 each) \$ 907,200.00

PRELIMINARY

ESTIMATED TOTAL PROJECT COST \$ 8,426,200.00

NOTES:

¹-Costs are estimated for project bid in 2009

²-Easement cost determined using \$0.50/square foot



Wilson's Mills Capital Improvements Plan - Phase 1
Sewer System Improvements
Wilson's Mills, North Carolina

THE WOOTEN COMPANY

TWC No. 2875-K
12/8/2009

DESCRIPTION		UNITS	TOTAL QUANTITY	UNIT COST	EXTENDED COST
<i>Sewer Project - Phase 1</i>					
1	8" PVC Sewer Pipe, Depth 0'-12'	LF	32,400	\$ 27.00	\$ 874,800.00
2	8" PVC Sewer Pipe, Depth 12'-20'	LF	3,000	\$ 41.00	\$ 123,000.00
3	4' Dia Manhole, Depth 0'-12'	EA	130	\$ 1,900.00	\$ 247,000.00
4	4' Dia Manhole, Depth 12'-20'	EA	12	\$ 3,200.00	\$ 38,400.00
5	Sanitary Sewer Pump Station (80 gpm)	EA	2	\$ 225,000.00	\$ 450,000.00
6	4" PVC Force Main	LF	4,100	\$ 8.00	\$ 32,800.00
7	16" Steel Encasement Pipe with 8" DI Sanitary Sewer Main	LF	450	\$ 175.00	\$ 78,750.00
8	4" Sanitary Sewer Service-Same side of road as sewer main	EA	87	\$ 575.00	\$ 50,025.00
9	4" Sanitary Sewer Service-Opposite side of road as sewer main	EA	87	\$ 1,000.00	\$ 87,000.00
10	Connection to Existing Manhole (core drill)	EA	7	\$ 1,300.00	\$ 9,100.00
11	Wetland/Creek Crossing	LF	100	\$ 200.00	\$ 20,000.00
<i>Miscellaneous</i>					
12	Driveway Repair	SY	1,600	\$ 40.00	\$ 64,000.00
13	Erosion Control (1.5% of Construction Cost)	LS	1	\$ 32,000.00	\$ 32,000.00
14	Rock Excavation	CY	720	\$ 50.00	\$ 36,000.00
15	Asphalt Pavement Patch	SY	400	\$ 42.00	\$ 16,800.00
16	Undercut of Unstable Soils for Pipe Foundation	CY	720	\$ 25.00	\$ 18,000.00
17	Surface Course/Overlay (Type SF9.5A)	SY	400	\$ 10.00	\$ 4,000.00

PRELIMINARY

Estimated Construction Cost	\$ 2,181,675.00
Contingency (10%)	\$ 218,130.00
Engineering (15%)	\$ 327,195.00
Easement Acquisition (including survey & mapping) ²	\$ 34,000.00
Sewer Assessment Fees (\$2,400 each)	\$ 417,600.00

ESTIMATED TOTAL PROJECT COST **\$ 3,178,600.00**

NOTES:

- ¹-Costs are estimated for project bid in 2009
- ²-Easement cost determined using \$0.50/square foot



**Wilson's Mills Capital Improvements Plan - Phase 2
Sewer System Improvements
Wilson's Mills, North Carolina**

THE WOOTEN COMPANY

**TWC No. 2875-K
12/8/2009**

DESCRIPTION		UNITS	TOTAL QUANTITY	UNIT COST	EXTENDED COST
<i>Sewer Project - Phase 2</i>					
1	8" PVC Sewer Pipe, Depth 0'-12'	LF	26,500	\$ 27.00	\$ 715,500.00
2	8" PVC Sewer Pipe, Depth 12'-20'	LF	7,000	\$ 41.00	\$ 287,000.00
3	4' Dia Manhole, Depth 0'-12'	EA	106	\$ 1,900.00	\$ 201,400.00
4	4' Dia Manhole, Depth 12'-20'	EA	28	\$ 3,200.00	\$ 89,600.00
5	Grinder Pump Station (50 gpm)	EA	1	\$ 125,000.00	\$ 125,000.00
6	2" PVC Force Main	LF	5,200	\$ 5.00	\$ 26,000.00
7	16" Steel Encasement Pipe with 8" DI Sanitary Sewer Main	LF	650	\$ 175.00	\$ 113,750.00
8	4" Sanitary Sewer Service-Same side of road as sewer main	EA	78	\$ 575.00	\$ 44,850.00
9	4" Sanitary Sewer Service-Opposite side of road as sewer main	EA	78	\$ 1,000.00	\$ 78,000.00
10	Connection to Existing Manhole (core drill)	EA	3	\$ 1,300.00	\$ 3,900.00
11	Wetland/Creek Crossing	LF	150	\$ 200.00	\$ 30,000.00
<i>Miscellaneous</i>					
12	Driveway Repair	SY	1,600	\$ 40.00	\$ 64,000.00
13	Erosion Control (1.5% of Construction Cost)	LS	1	\$ 27,000.00	\$ 27,000.00
14	Rock Excavation	CY	660	\$ 50.00	\$ 33,000.00
15	Asphalt Pavement Patch	SY	400	\$ 42.00	\$ 16,800.00
16	Undercut of Unstable Soils for Pipe Foundation	CY	660	\$ 25.00	\$ 16,500.00
17	Surface Course/Overlay (Type SF9.5A)	SY	400	\$ 10.00	\$ 4,000.00

Estimated Construction Cost	\$ 1,876,300.00
Contingency (10%)	\$ 187,480.00
Engineering (15%)	\$ 281,220.00
Easement Acquisition (including survey & mapping) ²	\$ 139,800.00
Sewer Assessment Fees (\$2,400 each)	\$ 374,400.00

PRELIMINARY

ESTIMATED TOTAL PROJECT COST \$ 2,859,200.00

NOTES:

- ¹-Costs are estimated for project bid in 2009
- ²-Easement cost determined using \$0.50/square foot



**Wilson's Mills Capital Improvements Plan - Phase 3
Sewer System Improvements
Wilson's Mills, North Carolina**

THE WOOTEN COMPANY

**TWC No. 2875-K
12/8/2009**

	DESCRIPTION	UNITS	TOTAL QUANTITY	UNIT COST	EXTENDED COST
<i>Sewer Project - Phase 3</i>					
1	8" PVC Sewer Pipe, Depth 0'-12'	LF	23,300	\$ 27.00	\$ 629,100.00
2	8" PVC Sewer Pipe, Depth 12'-20'	LF	800	\$ 41.00	\$ 32,800.00
3	12" PVC Sewer Pipe, Depth 0'-12'	LF	5,500	\$ 50.00	\$ 275,000.00
4	4' Dia Manhole, Depth 0'-12'	EA	115	\$ 1,900.00	\$ 218,500.00
5	4' Dia Manhole, Depth 12'-20'	EA	3	\$ 3,200.00	\$ 9,600.00
6	Sanitary Sewer Pump Station (80 gpm)	EA	1	\$ 225,000.00	\$ 225,000.00
7	4" PVC Force Main	LF	5,300	\$ 8.00	\$ 42,400.00
8	16" Steel Encasement Pipe with 8" DI Sanitary Sewer Main	LF	300	\$ 175.00	\$ 52,500.00
9	4" Sanitary Sewer Service-Same side of road as sewer main	EA	24	\$ 575.00	\$ 13,800.00
10	4" Sanitary Sewer Service-Opposite side of road as sewer main	EA	24	\$ 1,000.00	\$ 24,000.00
11	Connection to Existing Manhole (core drill)	EA	2	\$ 1,300.00	\$ 2,600.00
12	Wetland/Creek Crossing	LF	175	\$ 200.00	\$ 35,000.00
<i>Miscellaneous</i>					
13	Driveway Repair	SY	800	\$ 40.00	\$ 32,000.00
14	Erosion Control (1.5% of Construction Cost)	LS	1	\$ 25,000.00	\$ 25,000.00
15	Rock Excavation	CY	620	\$ 50.00	\$ 31,000.00
16	Asphalt Pavement Patch	SY	200	\$ 42.00	\$ 8,400.00
17	Undercut of Unstable Soils for Pipe Foundation	CY	620	\$ 25.00	\$ 15,500.00
18	Surface Course/Overlay (Type SF9.5A)	SY	200	\$ 10.00	\$ 2,000.00

PRELIMINARY

Estimated Construction Cost	\$ 1,674,200.00
Contingency (10%)	\$ 167,520.00
Engineering (15%)	\$ 251,280.00
Easement Acquisition (including survey & mapping) ²	\$ 180,200.00
Sewer Assessment Fees (\$2,400 each)	\$ 115,200.00

ESTIMATED TOTAL PROJECT COST **\$ 2,388,400.00**

NOTES:

- ¹-Costs are estimated for project bid in 2009
- ²-Easement cost determined using \$0.50/square foot

