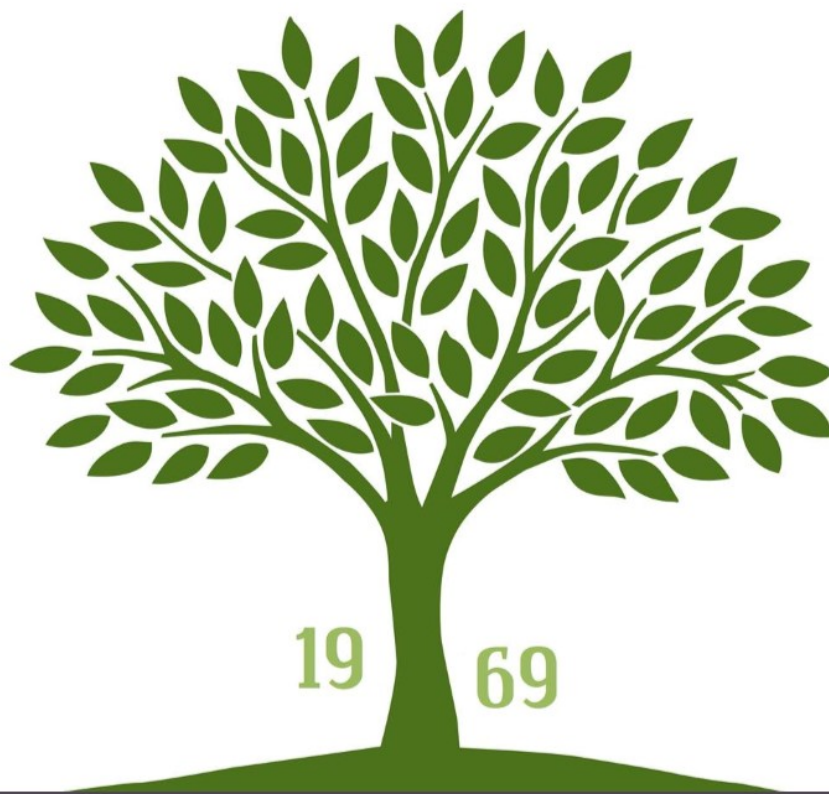


# LOCAL WELLHEAD PROTECTION PROGRAM PLAN

## TOWN OF GREENEVERS



DUPLIN COUNTY  
JUNE 12, 2018  
PWSID: 04-31-060

EMMA BRINSON  
ADMINISTRATOR/CLERK  
TOWN OF GREENEVERS  
314 E. CHARITY RD.  
ROSE HILL, NC 28458  
PH: 910-289-3078



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## BACKGROUND

In 1986, Safe Water Drinking Act (SWDA) amendments added Section 1428, “State Programs to Establish Wellhead Protection Areas”, which requires each state to develop a program to “protect wellhead areas within their jurisdiction from contaminants which may have any adverse effects on the health of persons.” The term wellhead protection area is defined in the law as “the surface and subsurface area surrounding a water well or well field, supplying a public water system, through which contaminants are reasonably likely to move toward and reach such water well or well field.” North Carolina’s Environmental Protection Agency (EPA) approved Wellhead Protection Program (WHPP) provides technical support to local governments and public water supply systems in their endeavors to develop and implement their own Wellhead Protection Plans.

One of North Carolina’s objectives in developing a protection program is to provide a process for public water system operators to learn more about their groundwater systems and how to protect them. Wellhead Protection Plans allow communities to take charge of protecting the quality of their drinking water by identifying and carefully managing areas that supply groundwater to their public wells.

Regulations of the **Division of Water Resources (DWR), under the Department of Environment Quality** require wellhead protection measures for any public water supply wells to be used as a community or non-transient, non-community water system to meet the following requirements:

- (1) The well shall be located on a lot so that the area within 100 feet of the well shall be owned or controlled by the person supplying the water. The supplier of water shall be able to protect the well lot from potential sources of pollution and to construct landscape features for drainage and diversion of pollution.
- (2) The minimum horizontal separation between the well and known potential sources of pollution shall be as follows:
  - (a) 100 feet from any sanitary sewage disposal system, sewer, or a sewer pipe unless the sewer is constructed of water main materials and joints, in which case the sewer pipe shall be at least 50 feet from the well;
  - (b) 200 feet from a subsurface sanitary sewage treatment and disposal system designed for 3000 or more gallons of wastewater a day flows, unless it is determined that the well water source utilizes a confined aquifer;
  - (c) 500 feet from a septage disposal site;
  - (d) 100 feet from buildings, mobile homes, permanent structures, animal houses or lots, or cultivated areas to which chemicals are applied;
  - (e) 100 feet from surface water;
  - (f) 100 feet from a chemical or petroleum fuel underground storage tank with secondary containment;
  - (g) 500 feet from a chemical or petroleum fuel underground storage tank without secondary containment;

- (h) 500 feet from the boundary of a ground water contamination area;
- (i) 500 feet from a sanitary landfill or non-permitted non-hazardous solid waste disposal site;
- (j) 1000 feet from a hazardous waste disposal site or in any location which conflicts with the North Carolina Hazardous Waste Management Rules cited as 15A NCAC 13A;
- (k) 300 feet from a cemetery or burial ground; and
- (l) 100 feet from any other potential source of pollution.

(3) The Department may require greater separation distances or impose other protective measures then necessary to protect the well from pollution; the Department shall consider as follows:

- (a) The hazard or health risk associated with the source of pollution;
- (b) The proximity of the potential source to the well;
- (c) The type of material, facility or circumstance that poses the source or potential source of pollution;
- (d) The volume or size of the source or potential source of pollution;
- (e) Hydrogeological features of the site which could affect the movement of contaminants to the source water;
- (f) The effect which well operation might have on the movement of contamination;
- (g) The feasibility of providing additional separation distances or protective measures.

(4) The lot shall be graded or sloped so that surface water is diverted away from the wellhead. The lot shall not be subject to flooding.

(5) When the supplier of water is unable to locate water from any other approved source and when an existing well can no longer provide water that meets the requirement of this Subchapter, a representative of the Division may approve a smaller well lot and reduced separation distances for temporary use.

**In addition, communities are encouraged to establish wellhead protection plans, which include the following:**

(1) The formation of a wellhead protection committee to establish and implement the wellhead protection program whose role it is to conduct a potential contaminant source inventory, provide options for the management of the WHP area, seek public input into the creation of the WHP plan, seek approval of the WHP program and to implement the WHP program;

(2) Delineation of the contributing areas of the water sources;

(3) Identification of potential contamination sources within the wellhead protection area;

- (4) Develop and implement wellhead protection area management actions to protect the water sources;
- (5) Develop an emergency contingency plan for alternative water supply sources in the event the groundwater supply becomes contaminated and emergency response planning for incidents that may impact water quality;
- (6) Development of a public education program;
- (7) Conduct new water source planning to insure the protection of new water source locations and to augment current supplies.

Wellhead protection for public water supply wells is a voluntary program, but water systems across the state are encouraged to take the above steps in protecting all groundwater sources.

The Public Water Supply Section (PWSS) provides the final approval for WHP Programs. The NC Wellhead Protection Program Coordinator is:

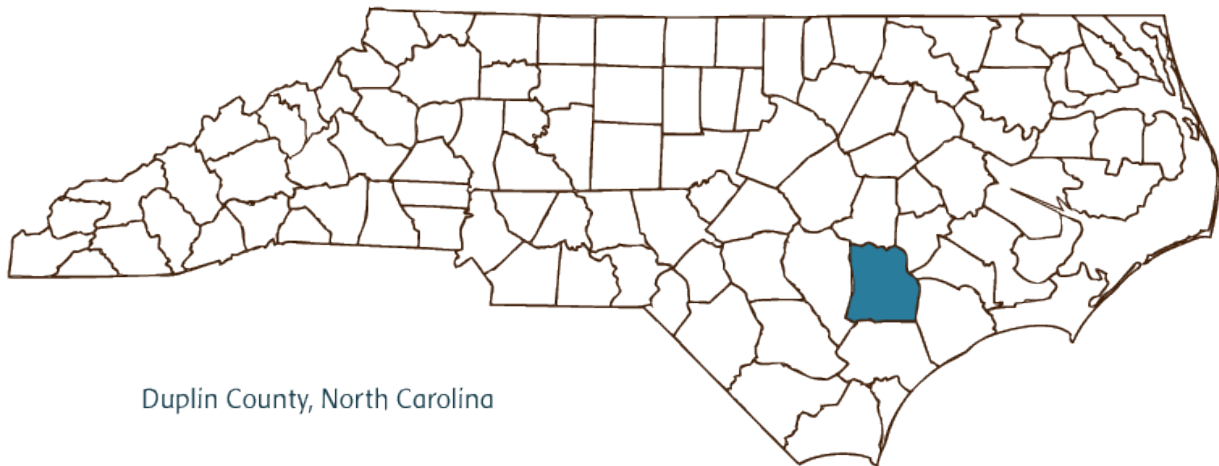
M. Gale Johnson, L.G.  
Public Water Supply Section  
1634 Mail Service Center  
Raleigh, North Carolina 27699-1634  
Phone: 919-707-9083  
Fax: 919-715-4374

## INTRODUCTION

The Town of Greenevers is located in southern Duplin County, NC and has a population of approximately 634 (according to the 2010 Census). The Town is situated along NC Highway 11 and Pasture Branch Road. It is approximately 50 miles north of Wilmington, 65 miles east of Fayetteville, and 85 miles southeast of Raleigh.

The Town of Greenevers existed as a community of farmers long before it acquired the name of Greenevers. The Town of Greenevers was officially incorporated by the North Carolina General Assembly on October 15, 1969. Since that time, Greenevers has grown into a full service town that offers the following services to its citizens and business community:

- Utility services – water and sewer
- Fire protection
- Police protection
- Recreation and leisure opportunities with a municipal park and a community center



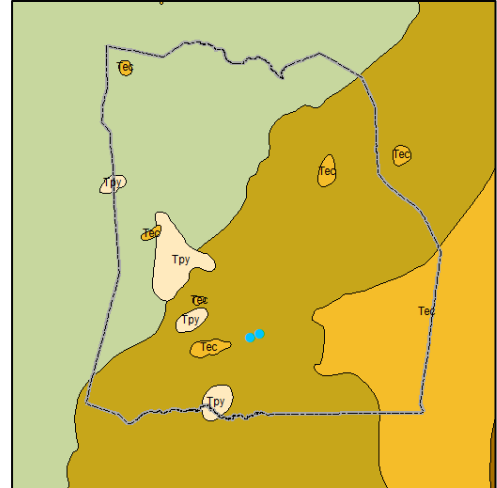
Duplin County, North Carolina


## Geological Data

Duplin County is in the Coastal Plain province of North Carolina. The relief is nearly level and gently rolling. The northwestern part of the county is in the middle Coastal Plain; the southern and eastern parts are in the lower Coastal Plain. The boundary between the two parts runs generally from southwest to northeast. In some places this boundary is clearly defined by marine terrace escarpments, but in others there is not a distinct line of separation. The Town of Greenevers sits approximately 56 ft. above the mean sea level in the Coastal Plain region of NC; and, it is underlain by the Pee Dee Formation which is one of four surficial geologic formations found in Duplin County. This formation spans the central portion of the county from the northeast to the south. Other formations include the Black Creek Formation in the northwest, the Comfort Member and New Hanover Member (undivided) in the

southeast, and sparingly between the west and southwest, the Yorktown Formation and the Duplin Formation (undivided).

The Pee Dee Formation consists of cretaceous age, sedimentary rocks. Sand, clay or mud, and limestone are the most predominant constituents of the surface materials. Loose sand and clayey soils in the vicinity allow recharge to the water table of about 600,000 gallons per day per square mile. Please see below for a description of the Pee Dee Formation:



Well Sites	Geocode	Formation	Description
1 and 2	Kp	Pee Dee 	Sand, clayey sand, and clay, greenish gray to olive black, massive, glauconitic, locally fossiliferous and calcareous. Patches of sandy molluscan - mold limestone in upperpart

### Water Production

The Town of Greenevers withdraws its water from the Black Creek aquifer through a total of two (2) water supply wells whose depths range from 278 ft. to 320 ft., each with a permitted yield of 250 gallons per minute (gpm). These wells are used on an altering rotation to fill the water tank which has a water storage capacity of 75,000 gallons. Both wells operate less than 12 hours per day. Water produced from these wells is treated onsite using liquid chlorine. The average daily water use for the Town is 63,000 gallons per day (gpd). Greenevers’ water system serves a population of 1,390 through approximately 9 miles of distribution lines maintaining approximately 422 water taps. The Greenevers Water System (CU3099) is located in the southwestern portion of the Central Coastal Plain Capacity Use Area (CCPCUA) on the western most edge of the declining water level zone. Greenevers has one (1) interconnection with Duplin County Water System (PWSID #: 04-31-080) used for the purchase of water during emergencies only. For information on each well, please see [Table 1](#) below. Information for each well was obtained from the Safe Drinking Water Information System (SDWIS) and the CCPCUA permit records.

Well	Location	Yield (gpm)	Depth	Aquifer Source	Latitude	Longitude
Well #1	120 Town Hall Drive	250	320	Black Creek	34.821925	-77.931087
Well #2	NC Hwy 11	250	278	Black Creek	34.816962	-77.945723

**Table 1. Well Data**



## I. THE WELLHEAD PROTECTION COMMITTEE

A Wellhead Protection Committee (WPC) was formed for the development of a Local Wellhead Protection Program Plan for the Town of Greenevers. Members of this committee are as follows:

- Ms. Emma Brinson, Town Administrator/Town Clerk, Town of Greenevers
- Mr. Jerry James, ORC, Town of Greenevers
- Mr. Marvin Murray, Maintenance Supervisor, Town of Greenevers
- Mr. Patrick Farrior, Maintenance, Town of Greenevers
- Mrs. Alicia Melton, North Carolina Rural Water Association

The Town of Greenevers Town Administrator/Clerk is responsible for implementing the Wellhead Protection Program. Under the authority of the Town Mayor and the Town Board of Commissioners, the Town Administrator/Clerk has been authorized to accept or reject any revisions/changes requested or presented by the Wellhead Protection Committee. The Town Administrator/Clerk will begin implementation of the Wellhead Protection Program upon approval by the Public Water Supply Section (PWSS) of NCDEQ's Division of Water Resources, and will complete implementation within ninety (90) days. Upon completion of the implementation phase, the Town Administrator/Clerk will submit notification to the PWSS in accordance with the schedule set forth in the approved WHP Plan.

### Priorities

The Wellhead Protection Committee (WPC) has identified the following priorities for the development of this plan:

- Public Education;
- Protection of Greenevers' water supply;
- And prevention of possible future contamination.

### Goals and Strategies

The Wellhead Protection Committee (WPC) has identified the following goals and strategies:

- Delivery of a copy of the completed Local Wellhead Protection Program Plan to the Public Water Supply Section of the NCDEQ's Division of Water Resources.
- Make sure the program is on-going and is updated as needed to ensure the protection of Greenevers' water supply.
- Seek funding through federal or state loans and grants to improve and expand the water system.

## II. DELINEATING THE WELLHEAD PROTECTION AREA

Delineation of the Wellhead Protection Area(s) involves making an inventory of all Public Water Supply (PWS) wells included under the plan and gathering basic information about each well. The most important part of this step is to identify the area(s) that must be managed to reduce the likelihood of contamination to the wells — the Wellhead Protection Area(s) (WHPA). Simply stated, the WHPA is the part of the landscape — above or below ground — which contributes water that will eventually reach the pumping well. If a contaminant reaches groundwater within the well system’s contribution area, the contaminant can move with the groundwater into the well. If the contributing area for the well is identified, and management strategies are set in place to manage certain activities, the possibility that the well might become contaminated can be significantly reduced. This is the area where the wellhead protection (WHP) plan will apply.

The Calculated Fixed Radius - Recharge Method is typically used to estimate the size of the WHPA for wells withdrawing water from unconfined surficial aquifers. However, the average recharge rate to confined and semi-confined aquifers of the coastal plain are, in general, small in comparison to the average recharge rate to unconfined surficial aquifers. WHPAs for wells withdrawing water from confined/semi-confined aquifers could potentially be unmanageably large if based on the recharge rate to these aquifers. Also, because the land area, in which recharge to a confined aquifer is derived, may be located many miles from the pumping well, accurate determination and management of WHPAs based on recharge presents numerous technical and jurisdictional difficulties in these types of aquifers.

As a result, WHPAs for wells withdrawing water from confined/semi-confined coastal plain aquifers are often based on time of travel calculations. A time of travel calculation uses the rate of groundwater movement to estimate how long water or a contaminant will take to reach a well from a point within the aquifer. In North Carolina, the WHPA for wells withdrawing water from certain confined aquifers encompasses the area surrounding the well for which the time of travel from the outer edge of the area to the well is 10 years. This methodology is known as the Calculated Fixed Radius – Volumetric Method. Because the Town of Greenevers sources water from the confined Black Creek aquifer, the Calculated Fixed Radius – Volumetric Method has been used to delineate the wellhead protection areas.

The size and shape of the protection areas were determined by estimating the volume of aquifer material in cubic feet ( $V_a$ ) that supplies withdrawals for a ten-year period. The volume of aquifer that supplies ten years of withdrawals can be estimated with the following equation where:

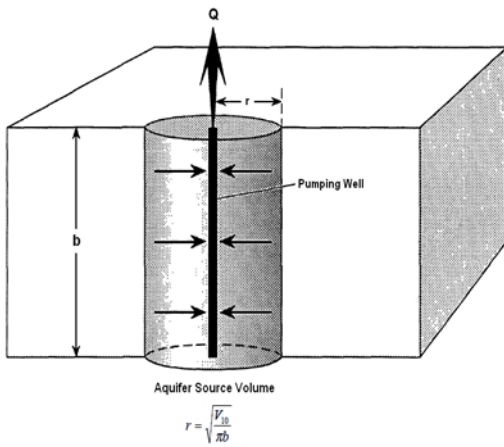
$$V_p = Q \left( \frac{\text{gal}}{\text{min}} \right) \times t_d \left( \frac{\text{min}}{\text{day}} \right) \times \left( \frac{\text{ft}^3}{7.48 \text{ gal}} \right) \times \left( \frac{365.25 \text{ days}}{\text{year}} \right) \times \frac{P \text{ (years)}}{n}$$

$V_a$  = the volume of aquifer in cubic feet that supplies water for time P

Q = well yield in gallons per minute

- td = the daily pumping period in minutes per day
- p = the period of withdrawals in years
- n = estimated porosity, dimensionless

The well yield ( $Q$ ) is the maximum sustained pumping rate possible for the well (not the daily pumping rate) as determined from a 24-hour drawdown test pursuant to North Carolina Administrative Code 15A NCAC 18C.0402(g). If well yield information is unavailable, the maximum capacity of the pump installed on the well may be substituted. The daily pumping period ( $td$ ) is the number of minutes per day that the well is pumped and should equal 720 (the number of minutes in 12 hours). This value is used because State regulations require that the yield of a public water supply well provide the average daily demand in 12 hours. If the actual pumping period exceeds 12 hours, then the actual pumping period in minutes per day should be used. Using a daily pumping period ( $td$ ) of 720 minutes per day, a period of withdrawal ( $P$ ) of 10 years and an estimated porosity of 0.2, the above equation, rounded, reduces to:  $V_a = 1,757,888 \times Q$

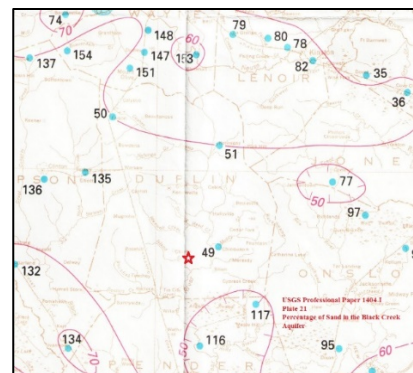


Because the units of gallons and minutes cancels when the equation is reduced, the volume of the aquifer, in cubic feet, can be calculated by multiplying the well yield, in gallons per minute, by the value given above. For ease (convenience) in applying the CFR – Volumetric Method, it is assumed that the volume is contained in a cylinder centered on the well.

To determine the radius of the cylinder of aquifer that provides water to the wells within a 10-year time of travel,  $V_a$  is substituted into the above equation where:

- $r$  = the radius of the Wellhead Protection Area in feet,
- $V_a$  = the volume of the aquifer, in  $ft^3$ , that supplies 10 years of withdrawals,
- $\Pi$  = 3.1416, and
- $b$  = the aquifer thickness or the length of the screened or open-hole

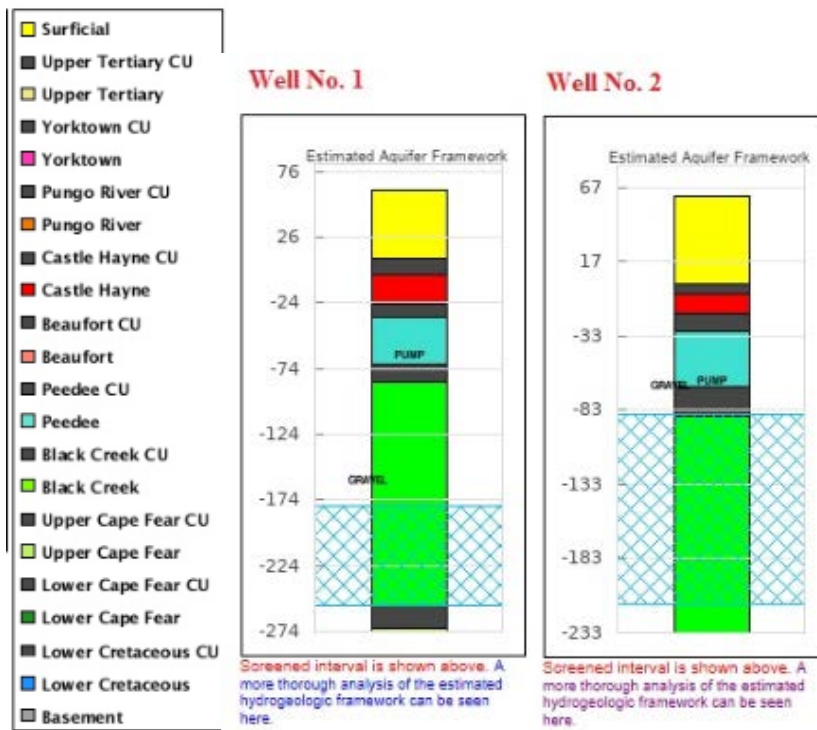
Information provided by the State Drinking Water Information System (SDWIS) was used to determine the aquifer source providing the water supply to each of Town of Greenevers wells. The screened interval information for each well, as provided in the CCPCUA permit records, was compared to the Ground Water Management Branch Hydrogeological Framework Database (shown on the following page). The information provided in the database indicates that these wells screen in the Black Creek aquifer, which in this location, is approximately 170 feet in thickness and is considered a confined aquifer. However, aquifers are not internally uniform but are



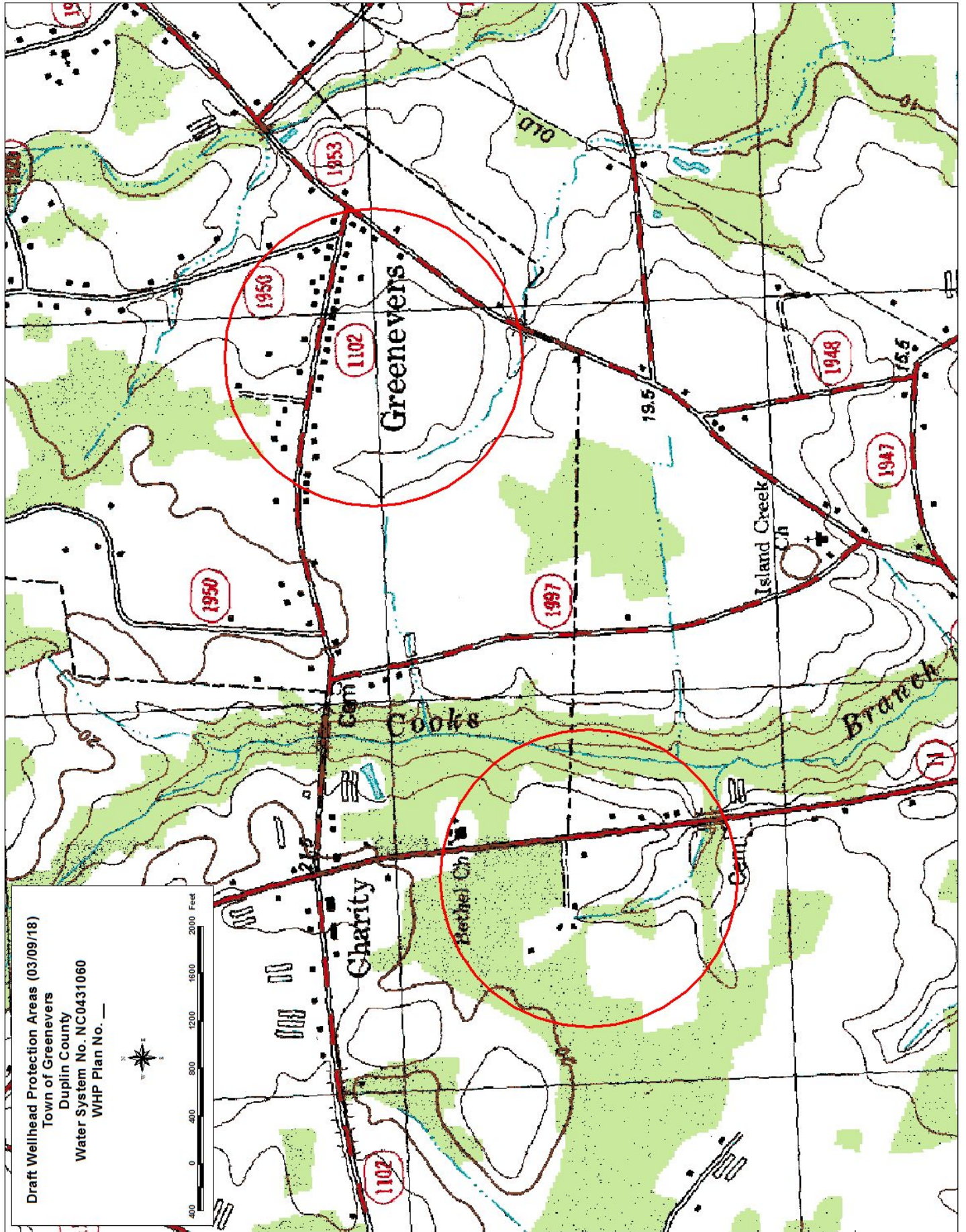
composed of permeable sands complexly interbedded with less permeable layers of silt and/or clay. The percentage of sand in this area of the aquifer (as shown to the right) was determined by referencing the U.S. Geological Survey Professional Paper 1404-I, the Regional Aquifer-System Analysis – Northern Atlantic Coastal Plain, better known as the “RASA”. According to the study, the estimated percentage of sand comprising the Black Creek aquifer in the area of the wellfield is between 50% and 60%. Therefore, 55% was used as the percentage of sand in the calculated delineation of the wells sourcing water from the Black Creek aquifer. Utilizing this data, the aquifer thickness was adjusted from 170 ft. to 90 ft. (rounded). The information in Table 2. below shows the figures and formulas used in the Calculated Fixed Radius – Volumetric Method for the delineation of the wellhead protection areas.

Well	Q (gal/min)	t <sub>d</sub> (min/day)	P (years)	n (porosity)	V (ft <sup>3</sup> )	b (aquifer thickness)	r (WHPA radius)	WHPA	
								Feet <sup>2</sup>	Miles <sup>2</sup>
Well 1	250	720	10	0.2	439,471,925	90	1,250	4,883,021	0.18
Well 2	250	720	10	0.2	439,471,925	90	1,250	4,883,021	0.18

**Table 2. Wellhead Protection Area Delineation Results**



The Wellhead Protection Areas for the Town of Greener was developed with the assistance of the Division of Water Resources, Wellhead Protection Program Manager, and has been approved by the Wellhead Protection Committee. The following map displays the determined Wellhead Protection Areas.



### III. INVENTORY OF POTENTIAL CONTAMINANT SOURCES

A Potential Contaminant Source (PCS) is any substance or activity that could adversely affect the quality of your drinking water supply. The PCS inventory is a complete listing, including mapped locations, of past and present land use activities within the wellhead protection area (WHPA) that threaten groundwater quality. Each of the potential contaminant sources that were identified was assigned a code according to the category into which it falls. The potential contaminant categories and corresponding codes are listed in [Table 3](#).

PCS Categories	Map Code	PCS Categories	Map Code
Pollution Incident	A	Liftstation	F
Apartments	B	Maintenance Shop	G
AST	C	Medical Facility	H
Chemical Storage	D	Recreational Facility	I
Equipment Repair/Storage	E	Septic Tank	J

*Table 3. Potential Contaminant Source Categories*

The inventory process begins by looking at the Source Water Assessment Program Report for the Town of Greener. Information from sixteen (16) State and Federal Databases is combined into that report, and this information is used as a starting point to research files at the various state agencies. A [description of each of the regulatory databases researched](#) can be found in the [appendix](#).

Source Name	Susceptibility Rating
Well #1	Lower
Well #2	Lower

*Table 4. SWAP Susceptibility Rating*

**NC SWAP Reports (Source Water Assessment and Protection)** - The Source Water Assessment Program (SWAP) information is compiled by the Public Water Supply (PWS) Section from available electronic PCS databases with statewide coverage obtained from various State agencies. The SWAP information is an extremely valuable starting point for conducting a PCS inventory. However, it is not a comprehensive database of all PCSs. Because it includes only those databases with statewide coverage that are available to the PWS Section in an electronic format, PCS information specific to the area of interest may not be included. Databases (both hardcopy and electronic) maintained by local, county, state, and federal agencies may contain information about known PCSs occurring within the WHPA (e.g., areas of

pesticide or fertilizer application, pesticide storage areas, landfills or dumps, inactive hazardous waste sites, underground storage tanks, above ground storage tanks, areas with septic systems, improperly constructed/abandoned wells, etc.) The NC SWAP Report was reviewed by the WPC and the Susceptibility for the Town's wells was ranked by the NC PWS Section as "Lower" as shown in [Table 4](#) above. Susceptibility is an indication of a water supply's potential to become contaminated by the identified PCSs within the assessment area. All relevant information found in the SWAP report is reflected in the [PCS Inventory Results](#). The Town of Greenevers' most recent (2017) SWAP Report can be accessed at the following website: [https://www.ncwater.org/files/swap/SWAP\\_Reports/0431060\\_4\\_18\\_2017\\_85\\_11.pdf](https://www.ncwater.org/files/swap/SWAP_Reports/0431060_4_18_2017_85_11.pdf)

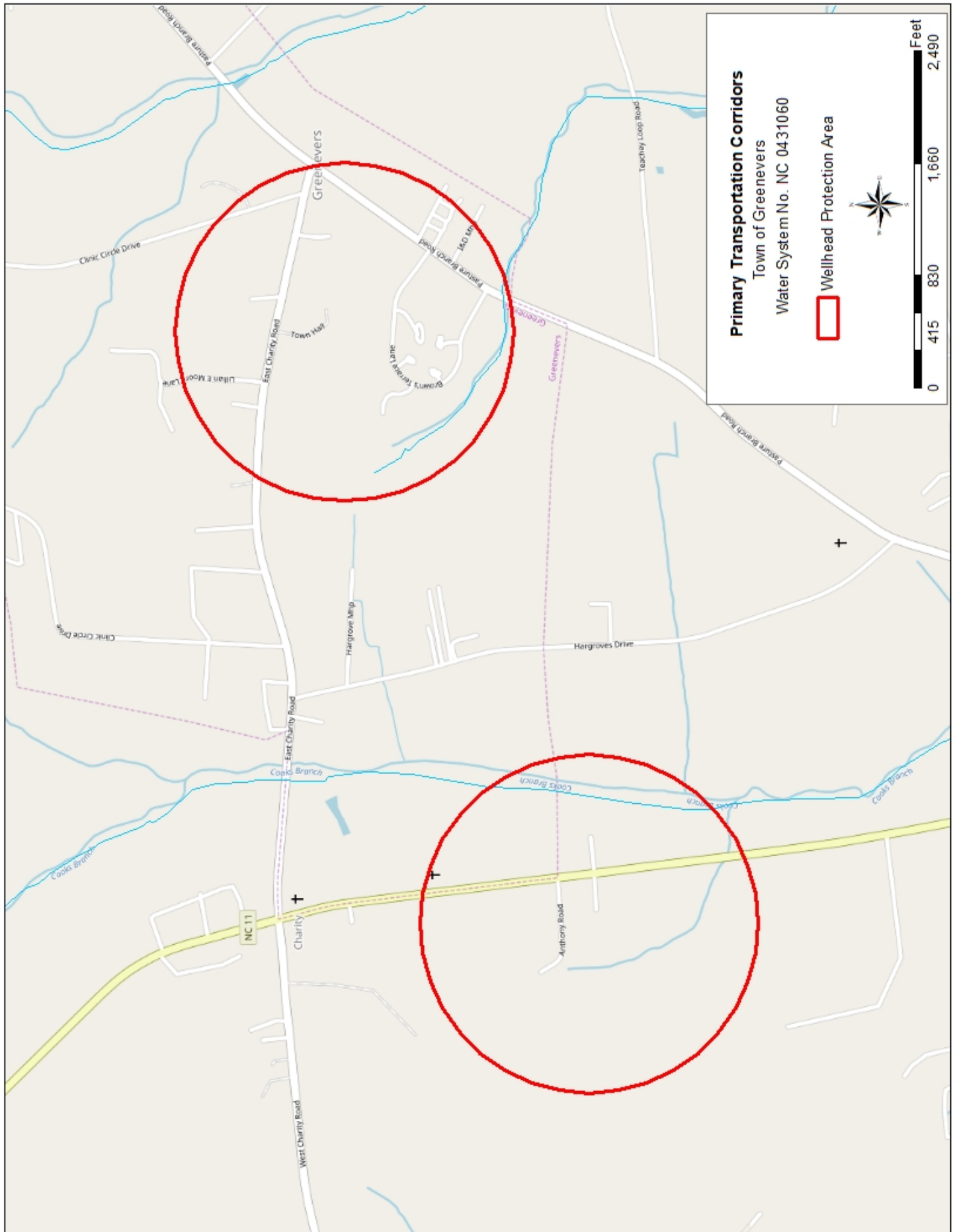
The WPC conducted a windshield survey of the WHPA and identified each potential contamination source (PCS) facility or activity that might exist within the WHPA. Onsite visits were made and additional information was obtained regarding quantity and types of contaminants kept on site. The [PCS Data Charts](#) show the sources identified during the inventory along with quantities and types of contaminants found at the site. The [PCS Inventory Maps](#) show the location of each of the identified potential contaminant sources within the WHPA. A list of [example potential contamination sources by risk category](#) is included in the [appendix](#).

**Abandoned Wells** – The Duplin County Environment Health Department was contacted concerning privately owned abandoned wells. There are no privately owned abandoned wells known of in the WHPA at this time. All inspections of private drinking water wells are conducted by Duplin County Environmental Health.

**Septic Tanks/Municipal Sewer** – The Town of Greenevers owns, operates, and utilizes a sewer collection system to dispose of waste. An E-1 sewer pump is located at each individual property connected to the sewer collection system (excluding Brown's Terrace Apartments). These pumps are maintained by the Town of Greenevers and are inspected annually. All sewer collected is sent to the Town of Wallace for treatment. Septic tanks in Duplin County are permitted and inspected by Duplin County Environmental Health who can be reached at 910-296-2126. There are several septic tanks located in the wellhead protection area of Well #2. These sites have been listed in the potential contaminant source inventory.

**Lift Stations** – There is one (1) sewage liftstation located within the wellhead protection area for Well 1. Details of this location can be found in the [PCS Data Charts](#).

**Transportation Corridors and Railways** - The following map displays primary transportation corridors located within the WHPAs. Heavy areas of transportation or cargo carriage are more susceptible to contamination from continuous exposure to substances through spills and wreckage. Transportation routes of concern in the area include: NC Hwy 11, East Charity Road, and Pasture Branch Road.





Several local, state and federal databases were searched. [Information describing these databases](#) and types of contaminants located in each are provided in the [appendix](#). A summary of the findings of this research is shown below. Pollution incident records located at the NCDEQ, Division of Waste Management, UST Section of the Wilmington Regional Office were reviewed and a summary for each current/open case pollution incident has been included. For additional information pertaining to any case, please contact the UST Section at the Wilmington Regional Office of NCDEQ by calling 252-946-6481.

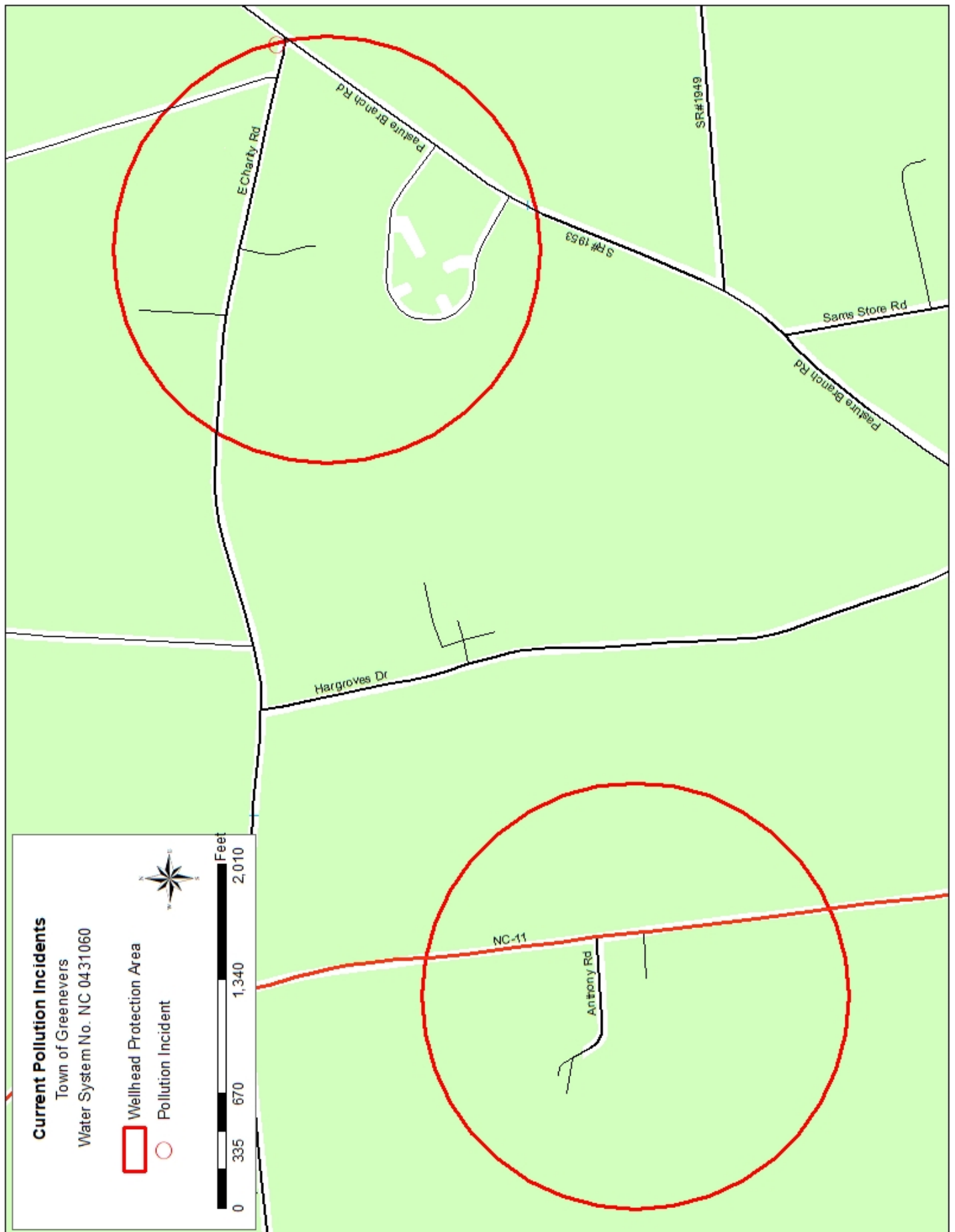
<b>Regulatory Agency Databases Researched for PCSs</b>	
<b>Database</b>	<b>Results</b>
Animal Operations	None
CERCLIS Sites	None
National Priority List Sites	None
Non-Discharge Permits	None
NPDES Permits	None
Old Landfill Sites	None
PCB Sites	None
Pollution Incidents	One (1)
RCRA Hazardous Waste Generators/Transporters	None
RCRA TSD Sites	None
Septage Disposal Sites	None
Soil Remediation Sites	None
Solid Waste Facilities	None
Tier II Sites	None
UIC Permits	None
UST Permits	None

*Table 5. Regulatory Agency Database PCSs per Type*

### **Current Pollution Incidents (UST Releases and Non-UST Releases)**

**# 13220 – Jiffy Stop Food Mart** – 471 Pasture Branch Rd. – Agra Environmental was contracted by Mr. Reggie Kenan in October 1994 to perform an Underground Storage Tank (UST) closure assessment for the Jiffy Stop Food Mart. A Comprehensive Site Assessment (CSA) and a Corrective Action Plan (CAP) were submitted and approved for the site in 1995 by NCDENR. A quarterly groundwater monitoring program was initiated at the site; the initial quarterly groundwater sampling event occurred in June 1995. A groundwater

remediation system (Pump and Treat) was installed which began operation in September 1997. Soil excavation and water line replacement was performed at the site between February 11, 2004 and March 2, 2004. Approximately 3,800 tons of contaminated soil at the site and along the former water line has been excavated at the site and the previously existing 8" PVC water supply line was replaced with a 6" cast iron pipe. According to the 2014 Quarterly Monitoring Report, there is a horizontal groundwater flow in the unconfined aquifer, generally to the east-northeast direction. There is one (1) active private water supply well located at 483 Pasture Branch Rd. (outside of the WHPA), used for outdoor use only, located approximately 250 ft. downgradient of the historic plume. The residence at that location is supplied with public water from the Town of Greenevers. This site is currently ranked as "low risk" upon no significant risk. This incident is still open because the responsible party has not sent in a notice of residual product and performed the public notice requirements. **(Map Code - A-1)**



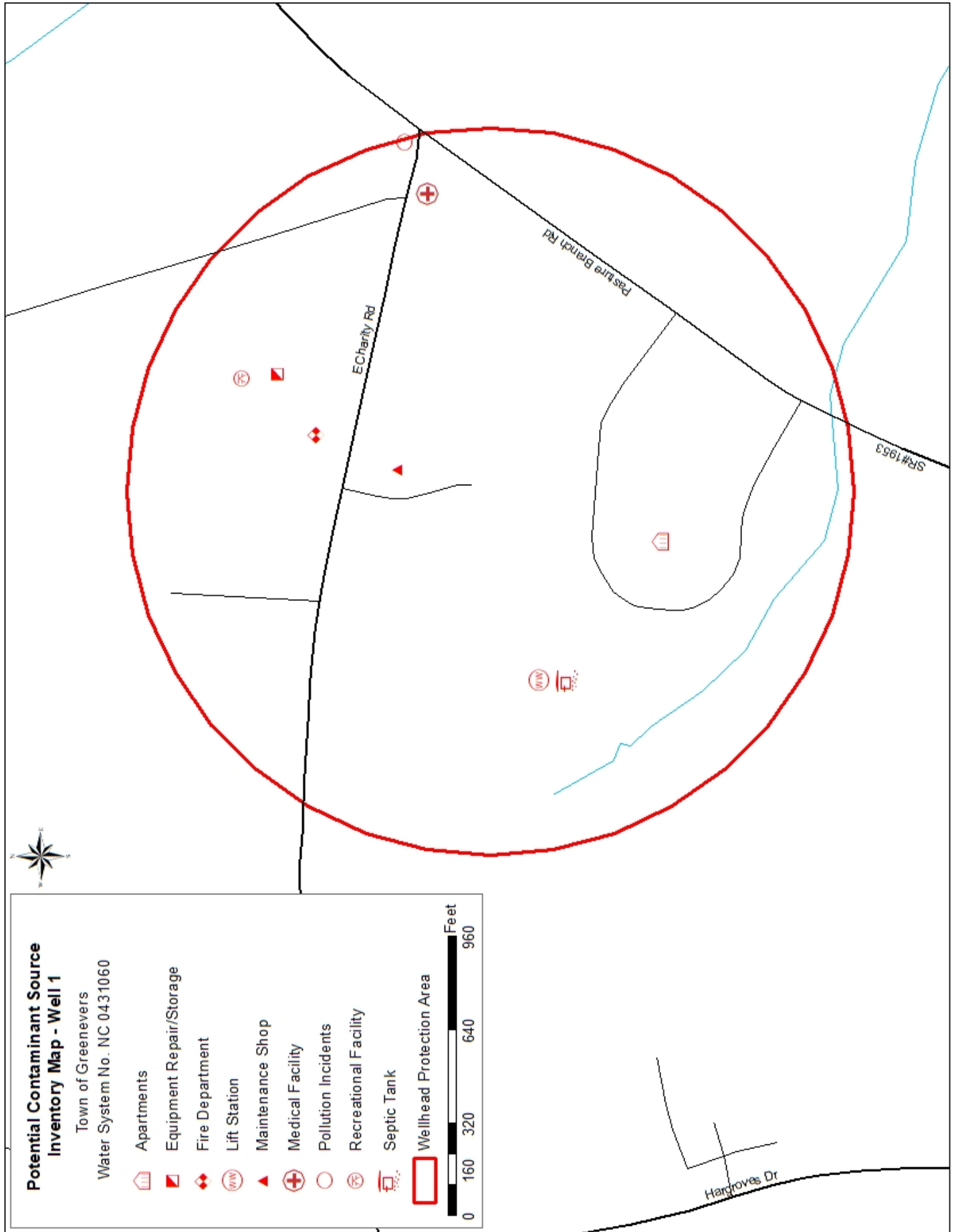
## Potential Contaminant Source Inventory

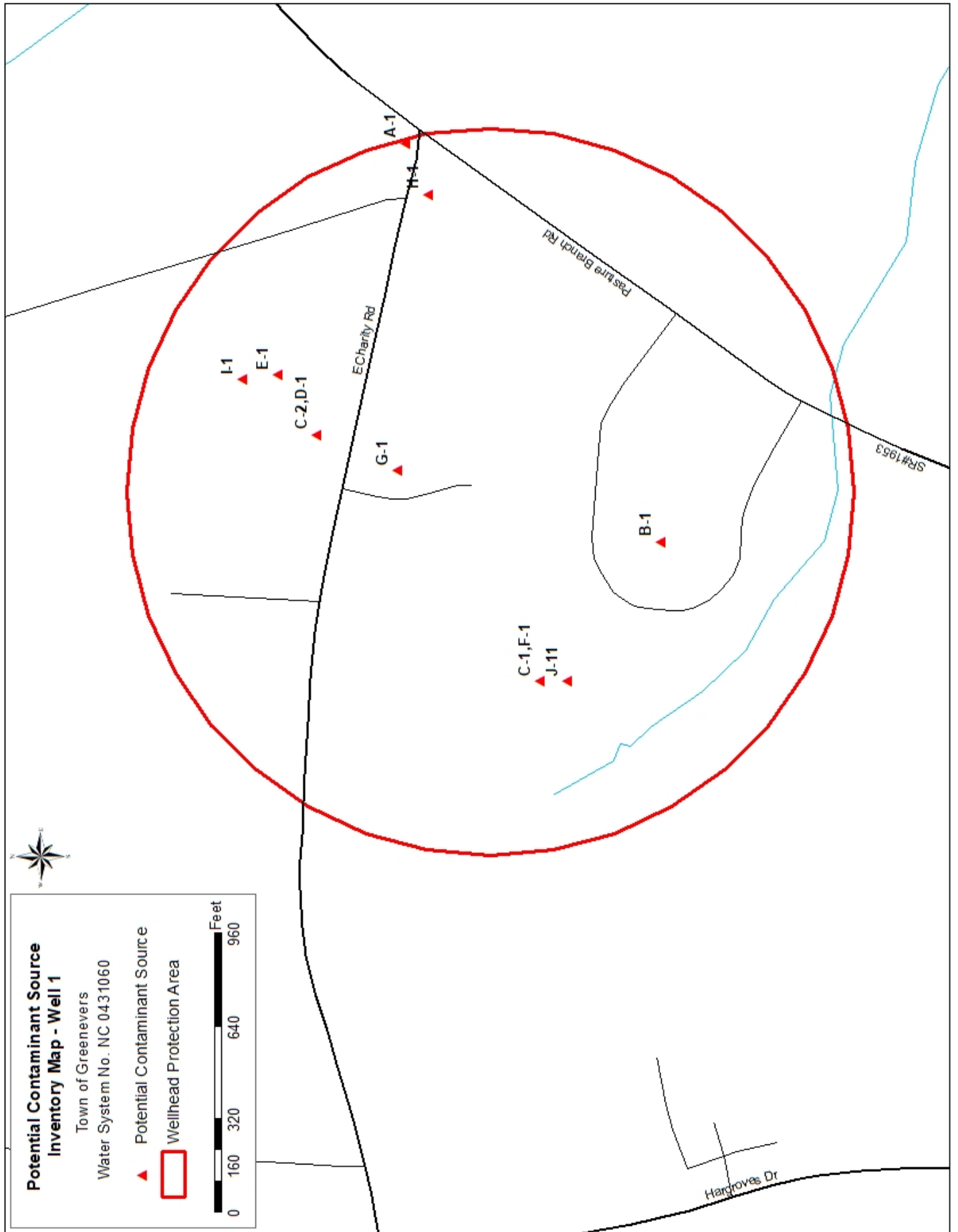
### Table and Maps

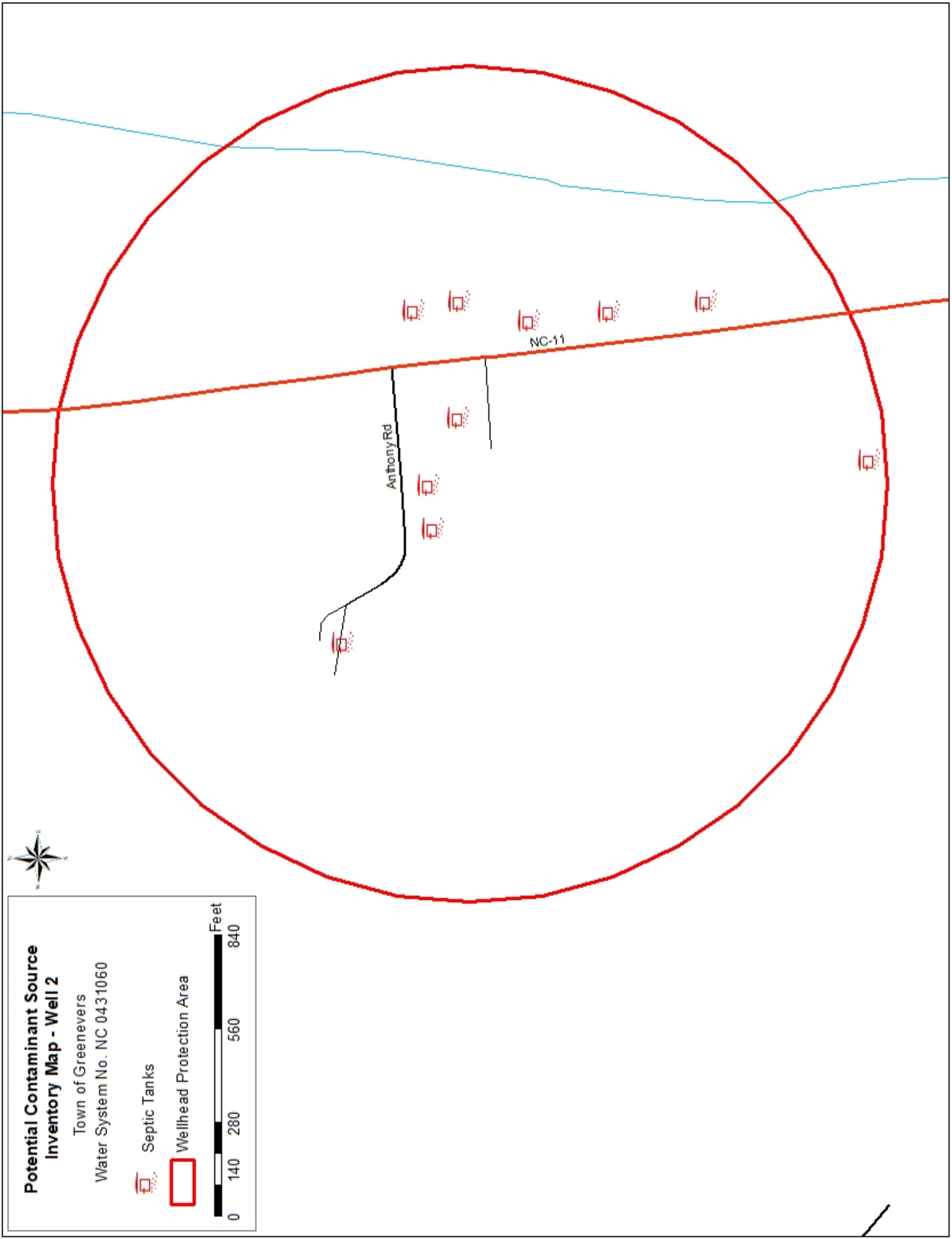
The following table lists the potential sources of contamination in the Town of Greenevers' wellhead protection areas. The exception to this are home heating oil tanks used at many residences, and which remain off the inventory for this reason. The table has map codes used to identify the potential sources of contamination on the PCS Inventory Map. For more detailed information about each potential contaminant source, including information relevant in providing educational materials to owners, please see the [PCS Data Charts](#), or the Site Evaluation Forms for PCSs in the [appendix](#). Where listed on the PCS Data Chart "low quantities" means less than 100-gallons or 100-pounds. The map codes used to identify each potential contaminant site category are detailed in [Table 3](#).

PCS Category	Map Code	PCS Site
Pollution Incident	A-1	Jiffy Stop Food Mart: Incident # 13220
Apartments	B-1	Brown's Terrace Apartments
AST	C-1	Greenevers Lift Station
	C-2	Greenevers Volunteer Fire Dept.
Chemical Storage	D-1	Greenevers Volunteer Fire Dept.
Equipment Repair/Storage	E-1	Multi State Contracting Corp.
Liftstation	F-1	Greenevers Lift Station
Maintenance Shop	G-1	Greenevers Public Works Shop
Medical Facility	H-1	Plain View Health Services
Recreational Facility	I-1	Greenevers Community Center
Septic Tank	J-1	Ferretiz Property
	J-2	Anthony Property
	J-3	Jugger Property
	J-4	Bryant Property
	J-5	C. Boney Property
	J-6	K. Boney Property
	J-7	Herring Property
	J-8	M. Frederick Property
	J-9	G. Frederick Property
	J-10	Blanton Property
	J-11	Abandoned Septic Tank Sand Filter System

**Table 6. Potential Contaminant Source Inventory Chart**








**Potential Contaminant Source  
Inventory Map - Well 2**

Town of Greenevers  
Water System No. NC 0431060

 Septic Tanks

 Wellhead Protection Area

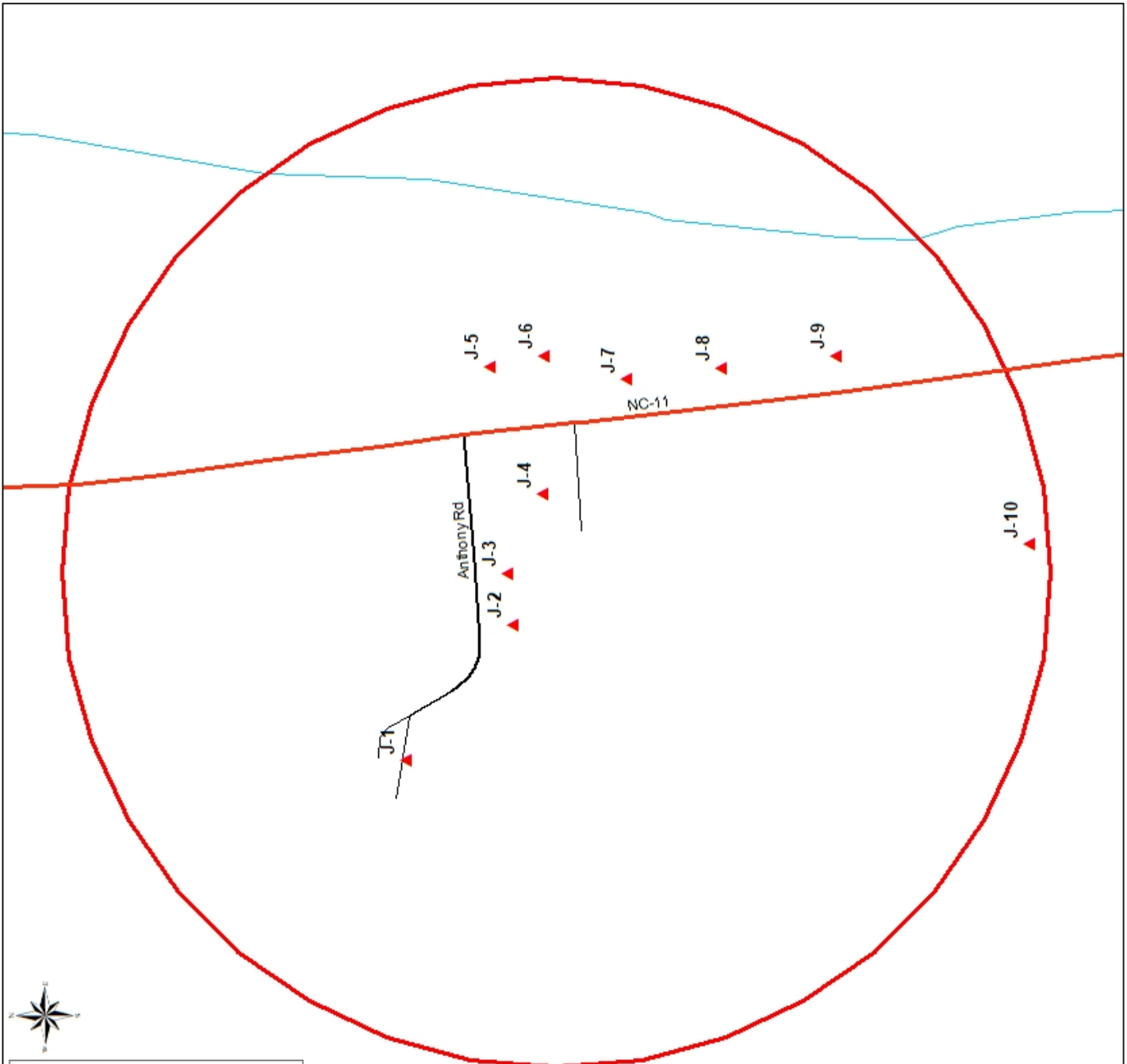




**Potential Contaminant Source  
Inventory Map - Well 2**

Town of Greenevers  
Water System No. NC 0431060

- ▲ Potential Contaminant Source
- Wellhead Protection Area





## IV. RISK ANALYSIS

A Risk Assessment for the Town of Greenerers has been conducted. For each WHPA, the PCSs were ranked according to the threat each presented to the water supply well or wells. The following method was used to rank each PCS in each WHPA:

Each PCS was assigned to a risk category of *higher, moderate, or lower* based on information adapted from the EPA (1993), and from the Oregon Wellhead Protection Program. Each PCS was assigned a numerical "category" score to correspond with the risk category [e.g., Higher-3, Moderate-2, and Lower-1]. Sites with known soil and/or groundwater contamination were assigned a score of "4". Each site of potential or known contamination was then assigned a "proximity" score calculated with the following equation:

$$\text{proximity score} = 1 - (\text{distance from the pumping center} / \text{radius of the WHPA})$$

The final PCS ranking was obtained by multiplying the category score by the proximity score for each potential contaminant site. This resulted in a relative ranking of each PCS within a given WHPA according to the threat it poses to the water supply well. Assessing the relative risk of contamination within each WHPA from the PCSs it contains allows for a determination of (1) which water supply wells are at greatest risk of contamination, and (2) which PCSs should be considered first with respect to wellhead protection. Once the risk assessment is carried out, priorities can be set to more effectively manage the PCSs. [Table 7](#) displays the potential risk of contamination to each individual well from highest probability to lowest. Table 8 and Table 9 present the PCSs ranked according to their final score from highest to lowest for each well.

Well Site	Physical Location	Yield (gpm)	Total Risk Score (H to L)
Well #2	NC Hwy 11	250	5.61
Well #1	120 Town Hall Dr.	250	4.76

**Table 7. Risk Assessment of Contamination to Individual Well Sites**

**Well #1 Potential Contaminant Ranking**

Map Code	PCS Site	Risk	Distance from Well (ft.)	WHPA Radius (ft.)	Proximity Score	Category Score*	Final Score
<b>C-2 D-1</b>	Greenevers Volunteer Fire Dept.	H	630	1,250	0.50	3	1.49
<b>G-1</b>	Public Works Shop	M	330	1,250	0.74	2	1.47
<b>E-1</b>	Multi State Contracting Corp.	H	840	1,250	0.33	3	0.98
<b>C-1 F-1</b>	Greenevers Lift Station	M	670	1,250	0.46	2	0.93
<b>B-1</b>	Brown's Terrace Apartments	L	610	1,250	0.51	1	0.51
<b>J-1</b>	Abandoned Septic Tank Sand Filter System	L	700	1,250	0.44	1	0.44
<b>I-1</b>	Greenevers Community Center	L	940	1,250	0.25	1	0.25
<b>H-1</b>	Plain View Health Services	L	1,045	1,250	0.16	1	0.16
<b>A-1</b>	Jiffy Stop Food Mart	H	1,245	1,250	0.00	4	0.02
Total Risk Score							<b><u>4.76</u></b>

**Table 8. Well #1 Potential Contaminant Ranking from Highest to Lowest**

\* Adapted from EPA (1993), and the Oregon Wellhead Protection Program

**Well #2 Potential Contaminant Ranking**

Map Code	PCS Site	Risk	Distance from Well (ft.)	WHPA Radius (ft.)	Proximity Score	Category Score*	Final Score
<b>J-3</b>	Jugger Property	L	125	1,250	0.90	1	0.90
<b>J-2</b>	Anthony Property	L	170	1,250	0.86	1	0.86
<b>J-4</b>	Bryant Property	L	205	1,250	0.84	1	0.84
<b>J-7</b>	Herring Property	L	525	1,250	0.58	1	0.58
<b>J-5</b>	C. Boney Property	L	550	1,250	0.56	1	0.56
<b>J-6</b>	K. Boney Property	L	550	1,250	0.56	1	0.56
<b>J-1</b>	Ferretiz Property	L	605	1,250	0.52	1	0.52
<b>J-8</b>	M. Frederick Property	L	665	1,250	0.47	1	0.47
<b>J-9</b>	G. Frederick Property	L	900	1,250	0.28	1	0.28
<b>J-10</b>	Blanton Property	L	1,195	1,250	0.04	1	0.04
Total Risk Score							<b><u>5.61</u></b>

**Table 9. Well #2 Potential Contaminant Ranking from Highest to Lowest**

\* Adapted from EPA (1993), and the Oregon Wellhead Protection Program

**Vulnerability Assessment**

Based upon the risk assessment above, the following vulnerability assessment was derived for Greenevers' permitted public drinking water supply wells. Taking into

consideration the nature and number of PCSs and the overall score of each PCS from the risk assessment above, a ranking of the vulnerability of the water supply wells is as follows with the well at the highest risk being designated as number one:

1. Well #2: NC Hwy 11
2. Well #1: 120 Town Hall Dr.

Taking into consideration the overall score of each PCS from the risk assessment, the following sites are considered to be at the highest risk of contaminating the water supply.

1. Greenevers Volunteer Fire Dept. – 317 E. Charity Rd. (C-2,D-1)
2. Public Works Shop – 314 E. Charity Rd. (G-1)
3. Multi State Contracting Corp. – 504 Clinic Circle Dr. (E-1)

In order to manage the three sites of greatest risk, the Town will hold a meeting with personnel to educate them on the proper handling and disposal of hazardous waste chemicals, as described in the management strategies, for both Town owned and maintained facilities including the Greenevers Volunteer Fire Dept. and the Public Works Shop. In addition, Multi State Contracting Corp. will be contacted and made aware of best management practices for automotive and equipment waste.

The Source Water Assessment Plan (SWAP) report, developed by the Public Water Supply Section, lists the Inherent Vulnerability Rating, the Contaminant Rating, and the Susceptibility Rating for Greenevers’ wells as follows:

<b>Source Name</b>	<b>Inherent Vulnerability Rating</b>	<b>Contaminant Rating</b>	<b>Susceptibility Rating</b>
WELL #1	Lower	Lower	Lower
WELL #2	Lower	Lower	Lower

A full copy of the report and explanations for the ratings may be found on the Public Water Supply Section website at the following address:

[https://www.ncwater.org/files/swap/SWAP\\_Reports/0431060\\_4\\_18\\_2017\\_85\\_11.pdf](https://www.ncwater.org/files/swap/SWAP_Reports/0431060_4_18_2017_85_11.pdf)

## **V. MANAGEMENT OF THE WELLHEAD PROTECTION AREA**

There are two methods of managing a Wellhead Protection Area, regulatory or non-regulatory. The Town of Greenevers has selected a non-regulatory approach to manage the wellhead protection area, which will include the following:

### **Public Education**

The Town Administrator/Town Clerk has the primary responsibility for implementing the public education program. The Wellhead Protection Committee may be consulted as required. The [PCS Data Charts](#) list owner contact information for the identified potential contaminant sources within the WHPA for distribution of educational brochures on best management practices.

A [Wellhead Protection Brochure](#) and/or newsletter will be made available to each resident, business, agricultural operation and industry within the Wellhead Protection Area. Copies of this brochure will be made available at the Town of Greenevers Town Hall and other locations deemed necessary for public education on Wellhead Protection. In general, the brochure and/or newsletter will convey to each citizen/business the following information:

- An explanation of what groundwater is and the number of wells in their particular system,
- An explanation of the Wellhead Protection Program,
- Source of groundwater pollution,
- Tips on protecting their water supply,
- Information on proper disposal of household hazardous wastes and oils (i.e., not disposed of through septic systems, pouring on ground, or through regular garbage collection)
- Information of proper use of fertilizers, herbicides, and pesticides,
- Information on household hazardous waste collection opportunities,
- Information on proper maintenance of heating oil tanks and septic systems, and
- Phone numbers to contact for more information

**The following management practices have been developed to meet current and future needs of managing multiple types of contaminants in the wellhead protection area. Regulations adopted through Town Ordinances supersede the following.**

### **Waste Management Practices**

The Town of Greenevers will provide information to each businesses, industries, and farms located within the WHPA on waste handling practices, best management practices, standard operating procedures, and waste oil disposal methods which could be employed to reduce the potential for ground water contamination. Also provided will be information regarding the North Carolina Division of Environmental Assistance and Customer Service (DEACS) to each business located within the WHPA. Owners/operators of potential contamination sources will be encouraged to contact DEACS. DEACS provides free technical and other non-regulatory assistance to reduce the amount of waste released into the air and water and on the land. DEACS serves as a central repository for waste reduction and pollution prevention information. DEACS emphasizes waste reduction through pollution

prevention, encourages companies and government agencies to go beyond compliance, and provides information about the environmental permitting process. This information is provided at no charge to North Carolina businesses, industries, government agencies, and the general public upon request. For additional information, DEACS may be contacted at (919) 707-8100 or (877) 623-6748. For environmental emergencies, the agency can be contacted at (800) 858-0368.

Currently, the residents of the Town of Greenevers are responsible for the disposal of their household waste. Duplin County offers 15 convenience site locations across the county, with the site located at 276 Landfill Rd., Rose Hill being the closest site to Greenevers. Garbage, recyclables, and household furnishings are accepted at each location. For the disposal of electronics and televisions, residents can take items to the Duplin County Landfill and Transfer Station at 325 Landfill Road in Rose Hill. More detailed information relating to Solid Waste/Recycling services for Duplin County can be found at: <https://www.duplincountync.com/governmentOffices/solidWasteRecycling.html>. A listing of all [Duplin County Solid Waste Collection Site locations](#) can be found in the [appendix](#).

### **Automotive & Equipment Waste**

All businesses in the Wellhead Protection Area that produce automotive or equipment wastes (oils, acids, antifreeze, etc.) will be provided information on waste handling practices, best management practices, standard operating procedures, and waste oil disposal methods which could be employed to reduce the potential for ground water contamination. They will also be provided information regarding the North Carolina Division of Environmental Assistance and Customer Service (DEACS). Owners/operators of these potential contamination sources will be encouraged to contact the DEACS. The DEACS provides free technical and other non-regulatory assistance to reduce the amount of waste released into the air and water and on the land. The DEACS serves as a central repository for waste reduction and pollution prevention information. The DEACS emphasizes waste reduction through pollution prevention, encourages companies and government agencies to go beyond compliance, and provides information about the environmental permitting process. This information is provided at no charge to North Carolina businesses, industries, government agencies, and the general public upon request. For additional information, the DEACS may be contacted at 1-877-623-6748 or to report an environmental emergency, call 1-800-858-0368. Their website is <http://portal.ncdenr.org/web/deao/>.

### **Personnel Training**

A staff meeting will be conducted with public works employees and town personnel to educate them on wellhead protection and the Town of Greenevers' wellhead protection program. They will be advised to be observant, while performing their duties, for any potential contaminant incidents. They will also be provided training and education on standard operating procedures and emergency measures for dealing with contamination incidents. Personnel at facilities owned and/or operated by the Town of Greenevers will be educated on steps they can take to reduce the potential for contamination (e.g. information about best management practices, standard operating procedures, waste handling practices, etc.). The Town of Greenevers will also contact the DEACS to investigate steps that can be taken to reduce the amount of waste released into the air and water and on the land at town owned and/or managed facilities.

### **Improperly Constructed or Abandoned Wells**

In the instance that an improperly constructed or abandoned well is discovered and identified within the WHPA, the owner will be provided information regarding the threat posed to the water supply by these wells. Owners of improperly constructed or abandoned wells will be encouraged to have these wells properly abandoned in accordance with state well construction standards found in 15A NCAC 2C, "Criteria and Standards Applicable to Water Supply and Certain Other Wells". If information exists that a well is improperly constructed or is contributing to the contamination of groundwater, the Town of Greenevers will notify the Wilmington Regional Office of the NC Division of Water Resources.

### **Underground Storage Tanks**

A regulated UST system is any underground storage tank and associated piping that contains petroleum (including gasoline, diesel and used oil) or a hazardous substance as defined by the State rules (15A NCAC 2N). Tanks containing heating oil for use on the premises where stored are not regulated.

All owners/operators of regulated underground storage tanks (USTs) and other facilities subject to federal and/or state regulations located within the WHPA will be requested to supply documentation that their facility is in compliance with said regulations. Operators of UST's will be asked to supply Greenevers with a copy of their UST permit. If any UST sites are found to be non-compliant, the Underground Storage Tank Section of the NC Division of Waste Management of DEQ will be notified.

If an abandoned UST site is found, the Town will contact the North Carolina Division of Waste Management, UST Section, to determine if a closure report was submitted demonstrating that no soil or groundwater contamination was identified during the removal of UST's. If a closure report was not submitted, the Town will notify the UST Section of the location of the facility within the WHPA and its proximity to a public water supply well.

For soil or ground-water contamination incidents occurring within any WHPA, Greenevers will contact the State agencies with oversight responsibilities for remediation to determine if remediation efforts are proceeding in a timely fashion and in accordance with any schedules established by these agencies. Through this process, the Town will bring to the attention of the State agencies with oversight responsibilities for remediation any failures by the responsible parties to comply with required monitoring and corrective action. The Town of Greenevers will also notify the State agencies with oversight responsibilities for remediation of the location of the facility within the WHPA and its proximity to a public water supply well. The Town will also contact the State agencies with oversight responsibilities for the contamination incidents and notify them of the locations of the sites issued notices of "No-Further Action" occurring within the WHPA and will request a review of this assessment.

The Town of Greenevers will notify any individual, industry, business, or government agency installing or planning to install a regulated underground storage tank within the wellhead protection area of the following regulation: North Carolina Underground Storage Tank (UST) Regulation 15A NCAC 2N .0301 stipulates specific siting and secondary

containment requirements for UST systems installed after January 1, 1991. The rule is summarized as follows:

- No UST system may be installed within 100 feet of a public water supply well or within 50 feet of any other well used for human consumption.
- Secondary containment is required for UST systems within 500 feet of a well serving a public water supply or within 100 feet of any other well used for human consumption.

Violations of this regulation will be reported to the Division of Waste Management, Underground Storage Tank Section. The UST Section will also be notified of the location of the facility within the WHPA and its proximity to a public water supply well or any other well used for human consumption. \*

### **Above Ground Storage Tanks**

\*Owners/facilities with an underground buried storage capacity of more than 42,000 gallons of oil, or an aggregate aboveground storage capacity greater than 1,320 gallons of oil, or an aboveground storage capacity of a single container in excess of 660 gallons are subject to the Oil Pollution Prevention regulations contained in Federal Regulations found in 40 CFR 112. In most cases, these facilities must prepare and implement a Spill Prevention Control and Countermeasures (SPCC) Plan. The Town of Greenevers will request a copy of the spill plan for each UST/AST facility located within the WHPA that require such document. The North Carolina General Statutes require registration of any facilities storing more than 21,000 gallons of petroleum product. Facilities with subject storage capacity found not to be in compliance with this regulation will be notified of their regulatory responsibility under this regulation. The WPC should also notify the Department of Environmental Quality, UST Section, if such facilities do not promptly come into compliance.

### **Residential, Municipal, and Industrial Wastewater Discharge**

All farms, residents, businesses, and industries in the WHPAs with septic tanks and home heating oil tanks will be distributed a copy of the Wellhead Protection brochure and/or newsletter and any other information Greenevers can obtain from federal, county and/or state agencies on proper septic tank and heating oil tank maintenance. The Town will maintain or obtain standard operating procedures for the maintenance of any wastewater collection system (including lift/pump stations) operating in any WHPA. Greenevers will also maintain or obtain annual wastewater reports from owners of municipal wastewater collection systems providing services in the WHPA. Reports will be reviewed to ensure that adequate maintenance, including but not limited to the interior cleaning of sewage lines, is performed routinely to reduce the potential for sanitary sewer overflows as required by the NC Water Quality Collections System (WQCS) permit. Sanitary sewer overflow information can be obtained from the Department of Environmental Quality, Water Quality Section, at the Wilmington Regional Office by calling (910) 796-7215.

The Town will contact the Division of Water Resources, Water Quality Permitting Section regarding facilities permitted to discharge wastewater to the land surface (Non-Discharge Permitted Facilities) to determine if any such operations located within the

WHPA are in compliance with applicable regulatory and permit requirements pertaining to environmental protection such as routine monitoring and reporting requirements. Notification will be made to the Division of Water Quality if it is determined that the facility has failed to maintain compliance with any regulatory and/or permit requirements pertaining to environmental protection such as routine monitoring and reporting requirements. The Town does not discharge water or wastewater of any sort onto the land surface and therefore is not a Non-Discharge Permitted facility.

Greenevers will contact the Division of Water Resources, Water Quality Permitting Section regarding facilities with NPDES permits to determine if all such NPDES discharges are in compliance with applicable regulatory and permit requirements pertaining to environmental protection such as routine monitoring and reporting requirements. Notification will be made to the Division of Water Quality if it is determined that the facility has failed to maintain compliance with any regulatory and/or permit requirements pertaining to environmental protection such as routine monitoring and reporting requirements.

### **Hazardous Chemical Storage**

The Town of Greenevers will provide information to each business, industry, and farm located within the WHPA on chemical storage practices, best management practices for handling and disposal of chemicals, and resources for the development of spill response plans. Operators/owners of potential contaminant sources which store hazardous chemicals will be encouraged to follow all OSHA regulations and standards including proper labeling of chemicals, proper chemical storage and handling practices, and maintaining records of Safety Data Sheets (SDS) for all chemicals onsite. Businesses, industries, and agricultural operations who employ staff will be encouraged to train their employees on the proper handling and disposal of all hazardous chemicals. All owners/operators of potential contaminant sites which use, store, or handle hazardous chemicals will be provided with a contact name and number for the Town of Greenevers for reporting any chemical release or spill to the ground surface or if damage is found to any sewage or drain lines or chemical storage disposal containers that could potentially cause a contamination event. In the event of any large chemical release reported, the Town of Greenevers will contact the NC Hazardous Materials Wilmington Regional Response Team at (910) 341-4254.

### **Pesticide Handling and Disposal**

The Town of Greenevers will contact all facilities or agricultural operations within the WHPA with pesticide storage or otherwise involved with the application of pesticides to ensure that they are pesticide operators licensed by the State of North Carolina and that proper records are maintained to ensure adherence to all NC Pesticide Laws. The Town will provide information to these facilities or agricultural operations on waste handling practices, best management practices, standard operating procedures, and proper waste disposal methods which could be employed to reduce the potential for ground water contamination. Duplin County Cooperative Extension offers a bi-annual pesticide collection day, to be held next around May 2020. For more details on this event, contact the Duplin County Extension Office at 910-296-2143. These facilities will also be provided with information regarding the NC DEACS.



### **Animal Operations**

The Town of Greenevers will contact the Division of Environmental Quality (DEQ) regarding any lagoons or animal operations located within its WHPAs if they suspect they may contaminate the ground water supply. It will also determine if facilities are in compliance with any regulatory and/or permit requirements pertaining to environmental protection such as routine monitoring and reporting requirements. Notification will be made to the Division of Environmental Quality if it is determined that a facility has failed to maintain compliance with any regulatory and/or permit requirements pertaining to environmental protection such as routine monitoring and reporting requirements. A Wellhead Protection brochure and/or newsletter will be delivered to each animal operations facility, in addition to information on best management practices.

### **Transportation Corridors and Railways**

The Town of Greenevers will regularly monitor public state databases and will regularly contact the NCDEQ, UST Section of the Wilmington Regional Office to determine if there have been any new contaminant spills or releases on any of the corridors within the Town's wellhead protection areas. Local fire department personnel, as well as police personnel, will be requested to provide information to the Town in the event such situation should arise.

## **VI. EMERGENCY CONTINGENCY PLAN**

The Town of Greenevers' Town Administrator/Town Clerk is the primary individual responsible for implementing contingency plans. The alternate responsibility lies with the ORC. The WPC may be involved in decision-making in the event that response actions are required.

### **Short Term Contingency Plan (less than 48 hours)**

The Town of Greenevers' water system has a total finished water storage capacity of 75,000 gallons. Its average daily usage is approximately .063 mgd. This system would only be able to supply water to residents for approximately 24 hours under normal operating conditions in the case of both wells being out of use. There is one (1) interconnection with the Duplin County Water System (PWSID #: 04-31-080) used for the purchase of water during emergencies only. With the occurrence of a brief power outage, the Town of Greenevers will operate from the stored water supply. If the water supply reaches the point of low pressure, Well # 1 will be operated by an onsite generator. Minor contamination events (e.g. sulfur dioxide, discolored water due to manganese, iron or sediment) would require the Town to isolate the contaminated section of the distribution system and flush the section thoroughly.

### **Long Term Contingency Plan (more than 48 hours)**

If one or more of Greenevers' wells were to become contaminated, they would be isolated from the rest of the public water supply system by closing a valve located at each well site. If evidence exists that a well is contaminated, it will immediately be taken off line and not returned to service until it is determined that water quality from the impacted well is in compliance with standards governing public water supplies. If it was determined that contaminated water had entered the distribution system, the local television and radio stations would be notified to run public service announcements stating that the water should not be consumed until further notice is given. Social media channels may be utilized, as well as door-to-door notification if necessary. The Public Water Supply Section of NCDEQ would be notified immediately of the situation and assistance would be requested to help ensure safe drinking water for the residents of Greenevers. The next step would be to determine if all or part of the distribution system was affected by the contaminant through testing and sample analysis. The testing performed would be determined by what the contaminant was thought to be (e.g. bacteriological, SOCs, VOCs, etc.). If only a portion of the system was affected, that portion would be isolated from the rest of the system by closing valves around the contaminated section. The affected portion, or the entire system if necessary, would be systematically flushed and purged until sample results showed the contaminant was no longer present. Once sample analysis (e.g. bacteriological, SOCs, VOCs, etc.) showed the contaminant was no longer present in the public water supply system, and after consultation with the Public Water Supply Section of NCDEQ, the local television and radio stations would be notified to run public service announcements that Greenevers' water supply was once again safe for consumption. Boil water advisories would be used throughout this contamination incident in accordance with state regulations. The interconnection with Duplin County would be used to supply water service to the Town during the time that the wells were inoperable.

In the event of water contamination occurring in both the Duplin County water system and the Greenevers' water system, the National Guard (Detachment 2 Company 6, 230<sup>th</sup> Brigade Support Battalion) in Wallace would provide water from the Division of Emergency Management in Raleigh. During the flushing of Greenevers' wells, the North Carolina National Guard would be notified at 910-285-2440. The National Guard would utilize a central location to provide potable water to Town residents until the Town's water system was deemed safe or the County system was ready for operation.

Should a major oil or chemical spill occur within the Wellhead Protection Area, appropriate emergency agencies will be notified. The first of these will be the Duplin County Emergency Services Director.

### **Duplin County Emergency Services: (910) 296-2160**

Emergency contact resources and information are found in the [appendix](#). This comprehensive listing includes contact information for emergency contacts, local utilities, local resources, county and municipal fire departments, and state and national agencies.

## VII. IMPLEMENTING, MAINTAINING, AND UPDATING THE WHP PLAN

### Public Participation

This plan will be available for public review at any time by visiting the Greenevers Town Hall. The Town of Greenevers will post a notice in the local newspaper explaining to its customers what a Local Wellhead Protection Program Plan is and how they have the opportunity to review the proposed LWPPP and make comments. Any substantive comments received from the public will be considered for inclusion into the final version of the Town of Greenevers' plan. An [example of the Public Notification](#) for the intended implementation of this Wellhead Protection Plan is located in the [appendix](#).

### New Public Water Supply Wells

The Town of Greenevers will amend its Local Wellhead Protection Program Plan to include any new wells added to its water system. The following steps will be taken to address any new wells added to the water system:

1. Develop a preliminary WHPA for the proposed well to determine the area of vulnerability.
2. Develop a contaminant source inventory for the preliminary WHPA.
3. Submit the information obtained in Steps 1 and 2 above to the Wellhead Protection Committee (WPC). Any information required by the Public Water Supply Section (PWSS) relating to the development and construction of new public water supply (PWS) wells must also be submitted.
4. If the WPC grants provisional approval of the proposed Wellhead Protection Plan, and the PWSS grants approval to construct or expand the PWS well or well system, then work may proceed with well construction.
5. Finalize the WHPA delineation for the new well.
6. Finalize the contaminant source inventory for the WHPA.
7. Submit finalized WHPA and contaminant source inventory to the WPC.
8. Once approval is received, implement any necessary regulatory and/or non-regulatory potential source management practices.
9. Submit the amended WHP Plan and all necessary supporting information to the Public Water Supply Section for review and approval.

### Future Wellhead Protection

The Town of Greenevers is aware that an effective Local Wellhead Protection Program is an ongoing process requiring monitoring of the Wellhead Protection Area (WHPA) and periodic review and updating of an approved plan. Therefore, Greenevers' WPC will monitor the Wellhead Protection Areas (WHPA) for any new or previously unidentified potential contaminant sources (PCSs) and activities occurring within the approved WHPAs.

The Town will amend the PCS inventory and other plan components (e.g. the management strategies, emergency contingency plan, etc.) as necessary to incorporate any new threats to the systems groundwater source of drinking water. Additionally, the PCS inventory will be updated annually using the same procedures used to develop the original PCS inventory. The Town will also fully update the WHP Plan every five years or at any time a new well is constructed for use with the Town's water supply system or a major land use change occurs within a WHPA. The individual(s) responsible for implementation of the WHP Plan will submit notification to the Public Water Supply Section annually upon completion of the PCS inventory update or immediately following the completion of a major revision. Any amended or revised sections of the approved WHP Plan resulting from an update or revision will also be submitted upon completion.

## APPENDIX

- Emergency Contact Resources and Information
- Description of Regulatory Databases Researched for PCSs
- Potential Contamination Sources by Risk Category
- Potential Contaminant Source Data Charts
- Duplin County Solid Waste Site Locations
- Glossary of Acronyms and Abbreviations
- References
- NC Division of Environmental Assistance and Customer Service (DEACS) Brochure
- Greenevers Educational Tri-fold Brochure on Wellhead Protection
- Managing Agricultural Fertilizer Application Flyer
- Gas/Service Station Best Management Practices Flyer
- Well Records
- Example Public Notice
- Site Evaluation Forms for Potential Contaminant Sites