

**Application for State Grant
Under the NC Clean Water Revolving
Loan & Grant Act of 1987**

For

Water Supply System

For the

Stumpy Point Community

Prepared for

**County of Dare,
North Carolina**

Prepared by



HOBBS, UPCHURCH & ASSOCIATES, P.A.

2009 SOUTH CROATAN HIGHWAY

KILL DEVIL HILLS, NORTH CAROLINA 27948

March 1999

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EXECUTIVE SUMMARY

HIGH UNIT COST GRANT APPLICATION

FOR THE STUMPY POINT WATER SYSTEM

Stumpy Point is a community located on the mainland of Dare County. The community is very rural and has approximately 110 residents. Water quality is very poor with high levels of iron hardness, color, and total coliform. A Preliminary Engineering Report was prepared in June of 1998 for a potential water system to serve the community. The PER outlined numerous scenarios including various water treatment plant locations and distribution systems with and without fire protection.

A fund application was made to the USDA-Rural Development for a system without fire protection because it is their policy not to provide systems for fire service. However, the maximum grant amount obtainable through USDA-Rural Development was 45% and the average water bill would still be approximately \$45.00 per month. Attempts to try to lower the water bills included mandatory hookups and 5% contingencies. An application was made in December of 1998 for the Supplemental Grant Program by the Rural Economic Development Center. This application was also turned down.

Dare County wishes to apply for grant funds through the Clean Water Bond Funds. Sufficient funds are applied for in grant money to lower the water bills to the \$22.54 average rate based on the threshold for Dare County. Total amount of funds requested is \$1,442,000. Attached is a summary of the total project cost to avoid confusion of all the scenarios presented in the PER. We have calculated the amount of loan money which could be paid off with the water bills based on the operation and maintenance cost and 80% participation (96 users).

It is pointed out that the LGC forms are executed based on Stumpy Point being a stand alone system. Information could be provided based on the Dare County water system; however, this would not be representative of the rural Stumpy Point community.

It is imperative that the Stumpy Point community acquire funds for this water system because of the health concerns and the drinking water quality.

STUMPY POINT WATER SYSTEM

SUMMARY OF TOTAL PROJECT COSTS

(Fire Protection/Include Lake Worth Area/Facilities
at the N.C. Hwy 264 & SR 1100 Intersection)

Total Construction Cost

—See Breakdown \$1,061,575

Engineering

—PER	\$ 10,000
—Design	\$ 76,600
—Inspection	\$ 75,000
—Additional Services	
Environmental Assessment for Discharge	\$ 45,000
Reverse Osmosis Technical Consultant	\$ 30,000
Plant Site Wetlands Delineation	<u>\$ 7,500</u>
	\$ 243,500

Owner Administration, Legal and Miscellaneous \$ 20,000

Pilot Plant Rental \$ 10,000

Contingencies

—10% of Construction Cost \$ 106,158

TOTAL PROJECT COST (Rounded) \$1,442,000

APPLICATION

To be submitted in <u>TRIPLICATE</u>	(To be filled in by State) DATE RECEIVED
See INSTRUCTIONS before completing application	
	ACCOUNT

SECTION 1 - REQUEST FOR STATE LOAN OR GRANT

<p>1) LEGAL NAME & ADDRESS OF APPLICANT</p> <p>Name: County of Dare</p> <p>P.O. Box: 1000</p> <p>City: Manteo</p> <p>Zip Code: 27954 County: Dare</p> <p>Telephone Number: (252) 473-1101</p> <p>Federal ID Number: 56-6000293</p>	<p>2) TYPE OF PROJECT (check one)</p> <p>_____ Wastewater Treatment Works</p> <p>_____ Wastewater Collection System</p> <p>___X___ Water Supply System</p> <p>_____ Water Supply Planning Project</p>
<p>3) PROJECT DESCRIPTION</p> <p>Project includes the installation of a new community water system (50,000 gallon per day reverse osmosis water treatment plant, 75,000 gallon elevated tank and distribution system) to serve the Stumpy Point Community</p>	<p>4) AMOUNT REQUESTED FOR THIS PROJECT</p> <p>LOAN \$ 166,036</p> <p>EMERGENCY LOAN \$</p> <p>GRANT \$ 1,275,964</p>

5) CERTIFICATION

The attached statements and exhibits are hereby made part of this application and the undersigned representative of the Applicant certifies that the information in the application and the attached statements and exhibits is true, correct and complete to the best of his knowledge and belief. He further certifies that: He has been authorized to file this application by formal action of the governing body of the Applicant as is evidenced by the ATTACHED CERTIFIED COPY OF AUTHORIZATION MADE BY THE APPLICANT'S GOVERNING BODY; the governing body of the Applicant agrees that if a loan or grant for the Project is made pursuant to the Clean Water Revolving Loan and Grant Act of 1987 and the Federally Funded State Revolving Fund Program (SRF), the Applicant will provide proper and efficient operation and maintenance of the approved Project after completion of construction thereof; and the Applicant has substantially complied or will substantially comply with all Federal, State, and local laws, rules, regulations, and ordinances applicable to the Project. Applicant will adopt and place into effect on or before completion of the project a schedule of fees and charges which will provide adequate funds for proper operation, maintenance, administration of the system, and repayment of all principal of interest on loans.

<p>6) AUTHORIZED REPRESENTATIVE</p> <p>Name: Geneva H. Perry</p> <p>Title: Chairman of the Board of Commissioners</p>	<p>7) SIGNATURE OF REPRESENTATIVE</p>	<p>8) DATE</p>
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SECTION II – FINANCIAL INFORMATION AS OF DATE OF APPLICATION

1) Financing construction of project:

<u>Source</u>	<u>Amount</u>	<u>Date Available</u>
a) Funds to be made available by the Applicant		
Cash.....	\$	
General Obligation Bonds.....	\$	
Revenue Bonds.....	\$	
b) Other (specify: _____).....		
	\$	
Sub-total		\$
c) Federal (Including SRF)		
Loan Requested.....	\$	
Grant Requested.....	\$	
Sub-total		\$
d) State		
Loan Requested.....	\$ 166,036	()
Grant Requested.....	\$ 1,275,964	()
Sub-total		\$ 1,442,000
Total		\$ 1,442,000

2) Name sources and amounts of other federal or state grants and loans requested, and indicate status of each request.

USDA-RD: Turned down
 Rural Economic Development Center Supplemental Grant: Turned down

3) Outstanding bonded indebtedness not including bonds for this project:

4) Indicate total appraised property valuation:

5) The applicant has followed proper accounting and fiscal reporting procedures, as evidenced by the Applicant's most recent report of audit, and the applicant is in substantial compliance with provisions of the general fiscal control laws of the State. Yes X No . Explain exceptions.

SECTION III – ENGINEERING INFORMATION

1) Project cost estimate summary:

Indicate under Item 1a major items of work for which separate contracts are proposed and estimated cost.

	<u>Estimated Total Project Cost</u>	<u>Estimated Eligible Project Cost</u>
a) Construction: Specify for each contract		
1) ContractProduction.....	\$ 434,375	\$ 434,375
2) Contract.....Storage.....	\$ 255,000	\$ 255,000
3) Contract.....Distribution.....	\$ 372,200	\$ 372,200
4) Contract.....	\$	\$
Sub-total	\$ 1,061,575	\$ 1,061,575
b) Technical Service...Engineering Planning	\$ 65,000	\$ 65,000
c) Administrative...Engineering Design & Specs....	\$ 113,500	\$ 113,500
d) Contingency (10% of const. cost)(5% after bid)	\$ 106,925	\$ 106,925
e) Other (specify) Construction Mgmt./Inspection.	\$ 75,000	\$ 75,000
f) Legal, Administrative.....	\$ 20,000	\$ 20,000
Sub-Total	\$ 1,442,000	\$ 1,442,000
g) Closing cost (2%)(For Federal Only).....	\$	\$
Total	\$ 1,442,000	\$ 1,442,000

2) Time schedule proposed for construction of project:

- a) Estimated date of submission of final plans and specifications _____ September 1999
If approved, give date and permit number _____
- b) Estimated date contract can be awarded _____ November 1999
- c) Estimated construction time (calendar days) _____ 300

3) Please indicate if project is under a mandated time schedule by the SOC, JOC, or if the project is under Moratorium. Yes _____ No X (If yes, attach copy.)

4) Indicate whether this is a regional project and list the local units involved. (Please provide a copy of the Executed intergovernmental agreement.) No

5) Project Engineer (firm name, address, and telephone number).

Hobbs, Upchurch & Associates, P.A.
P.O. Drawer 429
Kill Devil Hills, NC 27948

Phone: (252) 441-3913
Fax: (252) 441-2100
e-mail: hua-kdh@beachlink.com
eweatherly@hua.com

SECTION IV - SUPPORTING DOCUMENTS AND NARRATIVE STATEMENTS

- X 1) Resolution or resolutions of governing body providing required assurances and agreements designating an authorized representative (See Attachment A)
- X a) Certification by recording officer (See Attachment A)
- X 2a) Preliminary Engineering Report and Environmental Assessment (see instructions for number of copies) (See Attachment B and Attachment C)
- Or
- NA 2b) Facilities Plan (required for federal funds)
- X 3) Financial feasibility analysis - Forms LGC 108A and 108C (See Attachment D)
- NA 4) Agreements with other units of government (if applicable)
- X 5) Engineering and other professional services agreements and contracts (See Attachment P)
- X 6) Water use ordinance including user charge structure (See Attachment E)
- X 7) Certification of MBE percentage goal as adopted by the applicant in accordance with GS 143-128 (See Attachment F)
- NA 8) Site certificates by applicant and title counsel [clear or limited] (see attached forms)

THESE DOCUMENTS MAY BE SUBMITTED FOR ADDITIONAL PRIORITY POINTS UNDER THE STATE LOAN AND GRANT PROGRAM:

- NA 9) Final plans and specifications (note: final plans and specs for wastewater projects are required for higher priority consideration under the State loan and grant program)
- X 10) Resolution establishing capital reserve fund (if applicable) (See Attachment G)
- X 11) Resolution or supporting data for meeting criteria for water conservation (see water conservation criteria section in the rules)
 - I. Water Conservation (See Attachment H)
 - a) Continuing infiltration/inflow program
 - b) Water conservation education program
 - c) Incentives for water conservation or installation of low flow devices
 - II. Land Use Planning (See Attachment I)
 - a) Adopted land use plan
 - b) Plan exceeds state standards
 - c) Implementation of the plan

FOR HIGH-UNIT COST GRANT APPLICATION, THE ADDITIONAL DOCUMENTS MUST BE PROVIDED:

- X 12) Official copy of applicants existing water rate structure and sewer rate structure with documentation of an average monthly residential user charge (See Attachment J)
- X 13) Copy of projected project revenues for water and wastewater must be completed (see attached Form (See Attachment K)

Attachment A
Resolution and Certification

**RESOLUTION BY THE BOARD OF COMMISSIONERS
OF THE COUNTY OF DARE, NORTH CAROLINA**

WHEREAS, The Federal Clean Water Act Amendments of 1987, Federal Safe Drinking Water Act Amendments of 1996, and the North Carolina Clean Water Revolving Loan and Grant Act of 1987 have authorized the making of loans and grants to aid eligible units of government in financing the cost of construction of wastewater treatment works, wastewater collection systems, and water supply systems and

WHEREAS, The County of Dare has need for and intends to construct a water supply system project described as a community water system to serve the Stumpy Point Community including a reverse osmosis water treatment plant, wells, elevated storage and distribution system.

WHEREAS, The County of Dare intends to request state grant assistance for the project,

NOW THEREFORE BE IT RESOLVED, BY THE BOARD OF COMMISSIONERS OF THE COUNTY OF DARE:

That the County of Dare will arrange financing for all remaining costs of the project, if approved for a State grant award.

That the County of Dare will adopt and place into effect on or before completion of the project a schedule of fees and charges which will provide adequate funds for proper operation, maintenance, and administration of the system.

That the County of Dare will provide for efficient operation and maintenance of the project on completion of construction thereof.

That Geneva H. Perry, Chairman of the Board of Commissioners, and successors so titled, is hereby authorized to execute and file an application on behalf of the County of Dare with the State of North Carolina for a grant to aid in the construction of the project described above.

That Geneva H. Perry, Chairman of the Board of Commissioners, and successors so titled, is hereby authorized and directed to furnish such information as the appropriate State agency may request in connection with such application or the project; to make the assurances as contained above; and to execute such other documents as may be required in connection with the application.

That the County of Dare has substantially complied or will substantially comply with all Federal, State, and local laws, rules, regulations, and ordinances applicable to the project and to Federal and State grants and loans pertaining thereto.

Adopted this the _____ at Manteo, North Carolina

(Signature)

(Title)

CERTIFICATE OF RECORDING OFFICER

The undersigned duly qualified and acting as Clerk to the Board of the County of Dare does hereby certify: That the above/attached resolution is a true and correct copy of the resolution authorizing the filing of an application with the State of North Carolina, as regularly adopted at a legally convened meeting of the Board of Commissioners duly held on the _____ day of _____, 19____; and, further, that such resolution has been fully recorded in the journal of proceedings and records in my office. IN WITNESS WHEREOF, I have hereunto set my hand this _____ day of _____, 19_____.

(Signature of Recording Officer)

(Title of Recording Officer)

Attachment B
Preliminary Engineering Report

**PRELIMINARY ENGINEERING REPORT
COMMUNITY WATER SYSTEM
TO SERVE THE
STUMPY POINT COMMUNITY**

DARE COUNTY, NORTH CAROLINA



PREPARED BY

**HOBBS, UPCHURCH & ASSOCIATES, P.A.
2009 S. CROATAN HIGHWAY
KILL DEVIL HILLS, NORTH CAROLINA**

JUNE, 1998

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I. Project Planning Area

A. GENERAL

Dare County is located on the eastern coast of North Carolina with 800 square miles, 391 square miles of which are land. The permanent population (1990 census data) is 27,000. Current growth rate is 3.39% with an expected population in the year 2000 of 31,491 (North Carolina Census Bureau).

Stumpy Point is an unincorporated community located on the east coast of the Dare County mainland. The community extends along the north side of Stumpy Point Bay, which empties into the Pamlico Sound. Figure 1 is a copy of a USGS map for the Stumpy Point area including the Lake Worth area on NC Hwy 264. Stumpy Point is approximately 16 miles from Manns Harbor and 25 miles from Manteo. Appendix A contains additional maps of the soil types and flood hazard area in the community.

The purpose of this study is to analyze the feasibility of providing a community water system for the Stumpy Point area. Potable water for the residents of Stumpy Point is presently provided by individual wells. Typical wells range from 50 foot to 100 foot in depth. Wells in the area experience problems with hardness, color, iron and coliform.

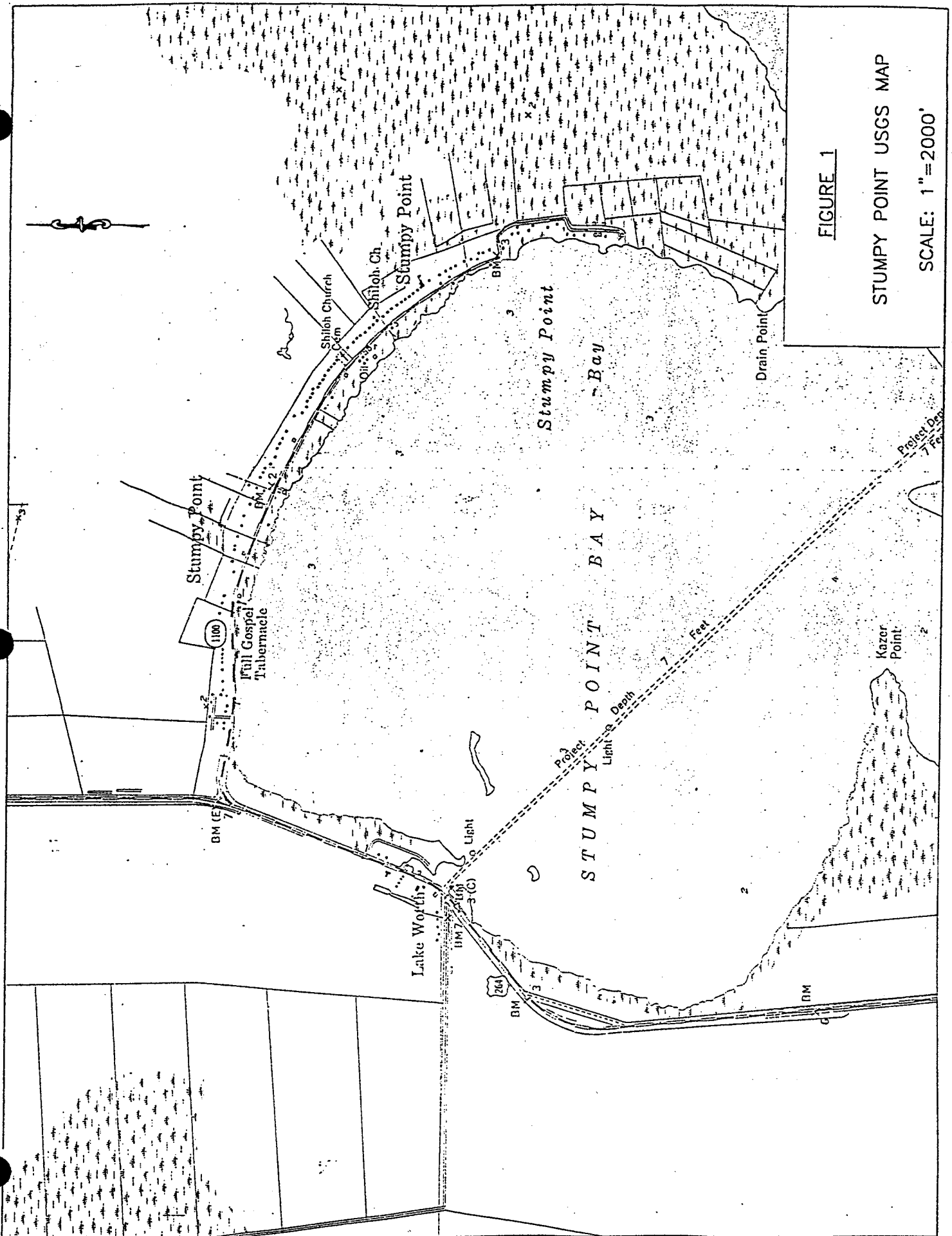


FIGURE 1

STUMPY POINT USGS MAP

SCALE: 1"=2000'

B. HOUSE COUNTS

A physical house count of the area was performed during the study. The only houses in the area lie along SR 1100 or along N.C. Hwy 264 to Lake Worth.

There are approximately 110 residents and eight commercial establishments along SR1100. There are approximately one residence and four commercial establishments on NC Hwy 264 within 0.7 miles of the SR 1100 and N.C. Hwy 264 intersection.

C. POPULATION PROJECTIONS

Census data provides existing and projected population data for counties, incorporated areas, and townships. For example, the 1990 census data population of the Croatan Township is 880, which includes the Stumpy Point community. However, the State census data does not break down the existing or projected population of the Stumpy Point community.

Since population projection data for Stumpy Point is unavailable, projections can be based on the remaining buildable lots in the community. The Dare County Health Department indicated sewage disposal would be the limiting factor. The Health Department indicated there are approximately ten remaining buildable lots in the Stumpy Point community, which are in the area of the Post Office. The Stumpy Point community is presently applying for grant funds from the Clean Water Management Trust Funds to construct a central sewer system. If funded, additional growth in the community could occur. For information purposes, seven building permits for new dwellings were issued in the last five years.

Additional input was received from the Stumpy Point Civic Association. The community is working toward the construction of a central sewer system which would allow growth beyond the 10 remaining permittable lots as stipulated by the Health Department. It is the desire of the community leaders to allow for a 50% increase in residences over the 20 year design period.

Therefore, based on 118 present households and businesses, this study will utilize a projection of 177 potential water users for the proposed water system.

II. Existing Facilities

The Stumpy Point community does not presently have a community water system. The Dare County Regional Water Supply System provides water in the areas of Roanoke Island and the barrier island. No public water systems are located on the Dare County mainland.

III. Need for Project

A. HEALTH AND SAFETY

The residents of Stumpy Point suffer from poor well water quality. Many have hardness, iron, color, odor, and bacteria problems. Residences of the community install softeners and even small under counter reverse osmosis units. Residents are very supportive of a community water system which will provide safe, clean drinking water.

The severity of the poor water quality also affects the amount of possible grant funds from USDA-RD. Therefore, a health survey was performed on the residential wells in Stumpy Point. All of the data is contained in Appendix B.

EPA breaks down drinking water standards into secondary and primary regulations. Secondary regulations are primarily cosmetic issues such as color, hardness, and iron that are not life threatening. Primary regulations are for water parameters that present a serious health hazard. USDA-RD devised a guideline to perform a health survey. A copy of the guideline is contained in Appendix B. It was assumed that the testing had to be for a primary drinking water regulation. Possible parameters include arsenic, fluoride, lead, copper, total coliforms, fecal coliforms, radium, radon, THM's, and giardia. We narrowed down our search to nitrate (a primary regulated inorganic parameter) and total coliforms.

We randomly sampled 1 in 4 wells for a total of 28 wells sampled. We only sampled wells along SR 1100 because the

Lake Worth will not be included in this project. Appendix B contains a map of the properties and houses in Stumpy Point and the houses from which a well water sample was taken. Also attached are the total coliform test results. As previously mentioned in the study, house counts indicated a total of 110 residences and 8 businesses. Further evaluation by Dare County indicated only 108 of the residences were habitable and only 7 businesses existed. Of the 108 residences, it was determined there were four cases in which two residences shared a well. In addition, it was discovered that one of the businesses had no well or plumbing. Therefore, the total number of residences was 104 and the total number of businesses was 6 for a grand total of 110 potential participants to be surveyed. The 28 wells sampled represent 25% of 110 total potential samples. It is pointed out that there may be other instances where residences share a well or possibly one of the several churches do not have a well.

Results of the nitrate samples indicated only one failure out of 28 samples. However, 14 of the 28 total coliform samples failed. This represents a 50.9% failure rate on the total coliform test ($110 \times 25\% = 27.50$, $14 \div 27.50 = 50.9\%$). Although the survey guidelines require a failure rate of 51%, we feel 50.9% should be adequate. If this is not the case, we request permission to conduct more research due to the potential of residences sharing wells or having no well at all.

The following background information is provided for total coliform regulations. The United States Environmental Protection Agency has determined that the presence of total coliforms is a possible health concern. Total coliforms are common in the environment and generally not harmful themselves. The presence of these bacteria in drinking water however generally is a result of a problem with water treatment or the pipes which distribute the water and indicates that the water may be contaminated with organisms that can cause disease. Disease symptoms include diarrhea, cramps, nausea, and possibly jaundice and any associated headaches and fatigue. EPA has set an enforceable drinking water standard for total coliforms to reduce the risk of these adverse health effects.

Under this standard, no more than 5% of the samples collected during a month can contain these bacteria.

For additional information, 5 wells were sampled for secondary parameters. A copy of these results are also contained in Appendix B. Three of the 5 wells sampled had a total hardness that exceeded the maximum drinking water standard and 5 of the 5 sampled had color that exceeded the maximum drinking water standard. It is also pointed out that two of the wells had the presence of fecal coliform. The presence of fecal coliforms or E-coli is a serious health concern. Its presence in drinking water is serious because fecal coliforms are associated with sewage or animal waste. Under the EPA standards, all drinking water samples must be free of these bacteria.

B. DEMAND PROJECTIONS

1. TARGET AREA

Due to the remoteness of the area, the Stumpy Point community is the only area considered in this study. This study will also include the Lake Worth area along NC Hwy 264. The potential users in the Lake Worth area have indicated to the Stumpy Point Civic Association their desire to be a part of a community water system.

2. WATER DEMANDS

The typical residential customer utilizes 5,000-6,000 gallons per month of potable water. The type of commercial establishments in the area (Post Office, churches, marina, Forestry Service) will not typically exceed the residential demand.

Peak flow in gallons per minute (GPM) is needed to size water distribution facilities. Based on a demand of 6,000 gallons per month, average flow is 0.14 GPM per user. The Rules Governing Public Water Systems prepared by the Department of Environment and Natural Resources has developed charts to determine peak demand for a system based on the size of the residential community

(Appendix C). Based on 177 users, the total peak demand is 185 GPM or 1.05 GPM per user.

Peak flow in gallons per day (GPD) is needed to size water production and storage facilities. Based on 6,000 gallons per month, the average day demand is 200 GPD per user for a total average day demand of 35,400 GPD with 177 users. If records are not available, public water systems must meet a daily flow requirement of 400 GPD per user. With 177 users, the daily peak flow would be 70,800 GPD for design of production and storage facilities.

IV. Alternatives Considered

This section presents a description of the alternatives considered to provide a public water system for the Stumpy Point community. Alternatives for water sources, treatment and distribution are presented.

Most of the residents in the study area are along SR 1100 (113 residences). Five residences are in the Lake Worth area which will require 4,400' of water main to serve. The Preliminary Engineering Report (PER) presents costs with and without service to Lake Worth. The residences in the Lake Worth area desire water service, however, it may be more feasible to install this portion in a future phase.

The PER presents distribution systems with and without fire protection. It is the desire of the Owner to provide fire protection which would include an elevated water storage tank, fire hydrants and a minimum of 6" water mains.

Dare County presently owns land located near the Community Building along SR 1100 and at the intersection of N.C. Hwy 264 and SR 1100. The study presents cost comparisons of the distribution system with production and storage facilities at each of the sites.

A. WATER RESOURCES

Several alternatives of potential water sources were considered for the project including piping water from existing Dare County water systems, surface water and ground water. Due to the remoteness of the Stumpy Point Community, piping water from

the nearest existing water system (Roanoke Island) is not economical. Utilization of surface water is not economical due to the salinity level of the Pamlico Sound. Utilization of ground water is considered the most feasible alternative for the Stumpy Point Community.

A test well was constructed during the study to determine the location of water bearing stratas and their water quality. A test well site was selected in the middle of the community near the Community Building on property presently owned by Dare County. The site is well drained and is cleared offering easy access for the drillers' machinery as well as being centrally located in the study area. Dare County also owns land located at the northeast corner of the NC Hwy 264/SR 1100 intersection. This site could be considered as another potential site for wells and treatment facilities. Appendix D contains location maps of the Dare County properties in the Stumpy Point community.

The test well was drilled to a depth of 362'. Two potential water bearing stratas were located at depths of 160'-180' and 260'-300'. The well was screened and water samples were collected from depths of 165'-175' and 262'-272'. All drillers information and water quality results are contained in Appendix E.

Regulatory design criteria requires the yield of a well system be based on meeting a 400 GPD per user demand in 12 hours of pumping. A residential community water system which serves more than 50 users is required to have a minimum of two wells. Therefore, the minimum well design criteria should be based on two wells supplying 50 GPM per well.

Wells should be spaced to prevent overlappage of the cone of depression of the water pumping level. Well spacing cannot be determined from the data available, however a good rule of thumb for well spacing in Dare County is 1500'.

Each well site must provide a 100' radius around the well. Basically, each well site must be a minimum of 200' X 200'. As seen from the test well site map in Appendix C, additional land

would have to be purchased if a production well was located at the test well site next to the Community Building. In addition, a second well site will have to be purchased approximately 1500' from the test well site. Another consideration is to locate the two needed production wells on Dare County property at the N.C. Hwy 264/SR 1100 intersections. This site is large enough to space the wells 1500' apart. The hydrogeologist has stated that water quality should not change significantly from the test well site to the intersection site at the depths investigated.

B. TREATMENT

A thorough examination of the water quality (Appendix D) is required in selection of the treatment process. The water quality is poor requiring extensive treatment. The following observations are made relative to the water quality.

- The water is relatively soft. Total hardness levels are well below the maximum contaminate levels (MCL).
- Color is very high. This may lead to problems meeting THM limits.
- The silica at 170' seems unusually high for this region. The value of 53 mg/l is suspect.
- Iron is high at the 260' depth while the iron levels at the 170' depth are acceptable. However, manganese levels are similar at both depths. It might be concluded that the iron should also be similar at the two depths.
- Chloride levels are well above the MCL.
- The turbidity and total suspended solids are very high. The total suspended solids at the 170' depth seem suspect relative to the turbidity values.

Based on the water quality from the test well, a membrane (i.e., Reverse Osmosis) treatment process is required to adequately and efficiently treat the water. Extended pretreatment or prefiltration may be needed for removal of iron, suspended solids or colloidal silica. Pretreatment may be best accomplished by micro-filtration (i.e., Ultra Filtration membrane). A pilot plant study will be required to determine exact treatment requirements and design parameters.

Initial plant capacity can be based on the current number of dwellings. Based on 118 users at 400 GPD, initial demand is 47,200 GPD or a 50,000 GPD unit. Buildout is estimated for 177 dwellings at 70,800 GPD or an addition 25,000 GPD unit.

The unwanted constituents of the raw water is not allowed to pass through (i.e., are rejected by) the semi-permeable membrane. The recovery of a membrane unit is the percentage of potable water (permeate) as compared to the reject water (concentrate). Based on the test well results, the recovery of the membrane unit can be expected to be approximately 80%. The feedwater must be increased by the reject amount. Therefore, the well yield must be increased to approximately 94,000 GPD for a 75,000 GPD treatment plant or two wells at 65 GPM each instead of 50 GPM as discussed in the previous section.

The reject or concentrate must be disposed of and is typically discharged into a nearby body of water. The likely discharge location would be in Stumpy Point Bay. Preliminary discussions with regulatory agencies have not indicated any major issues concerning the discharge of the concentrate water. Discharge concerns would be associated with the chlorides of the concentrate water as compared to the receiving waters and effects of the discharge on aquatic life. An Environmental Assessment study will have to be performed to obtain a discharge permit and to address regulatory permitting issues.

C. STORAGE AND DISTRIBUTION

1. GENERAL

Storage and distribution have a common aspect in that both must be sized together to maintain adequate system pressure and design flow rates. The storage tank and distribution system must be sized to maintain 30 pounds per square inch (psi) throughout the system during periods of peak flow or 20 psi during a fire flow demand. As previously discussed, peak demand flow is determined by using 1.05 GPM per user. Fire flow design should provide the capability of supplying 500 GPM at each end of the distribution system.

Two types of storage tanks are available for consideration: elevated and hydro-pneumatic (pressure) tanks. Elevated tanks should have a sufficient height to produce the minimum system distribution pressure. Elevated tanks are sized to provide one half day of demand in storage or a minimum of 75,000 gallons, whichever is greater. Pressure tanks are sized to provide peak domestic flow and cannot be utilized with a system which is designed for fire flow. No more than 300 users are allowed on a pressure tank system.

Distribution mains are sized to maintain a minimum pressure at peak or fire flow demand if designed for fire flow protection. Fire hydrants cannot be installed on water mains less than six inches in diameter or on water systems not designed to carry fire flow protection. Two-inch mains may be installed at the ends of systems with a length not to exceed 1,000 feet and a maximum of twenty users.

2. SYSTEM DESIGN CRITERIA

This study presents design criteria for a system with and without fire protection. An elevated water storage tank will be utilized for the system with fire protection and a pressure tank for the

system without fire protection. The minimum water main size for a system with fire protection is 6" versus minimum size necessary to supply adequate domestic pressure for a system without fire protection.

The system is also designed based on the storage tank being located on the Dare County land near the Community Building and the land at the intersection of SR1100 and NC Hwy 264. The location of the tank will affect the water main sizing.

- Elevated Storage Tank Design: Elevated storage tank volume is 75,000 gallons to meet minimum required size. Tanks can be built more economically if designed within industry standards. Industry standard for tank height is between 130 and 140 feet to high water elevation. Design heights above the standard are often utilized, however the cost is increased by about \$1,000 for each additional foot in height. A balance is required between tank height and water main size. It was found that a tank height of 140 feet was most economical for the system.
- Hydro-pneumatic (pressure) Tanks: Design criteria for pressure tanks used in this study is presented in the Rules Governing Public Water Supply Systems provided by the Department of Environment and Natural Resources.

Pressure tanks are sized based on effective volume and total volume. It is assumed the pressure tank system will operate on a 60-40 p.s.i. pressure cycle. The calculated effective volume of the tank (one operation cycle) is 1,720 gallons with a required tank size of 7,000 gallons. For purposes of this study, an industry standard tank size of 10,000 gallons will be used.

- Distribution System: The distribution system is presented in four scenarios: with and without fire protection and production/storage facilities located at Dare County properties near the Community Building or near the SR 1100/NC Hwy 264 intersection. In addition, the water mains are designed to carry flow to Lake Worth on NC Hwy 264.

A hydraulic analysis was performed to determine needed water main sizing for each scenario. Due to the simplicity of the distribution system (one straight pipe) friction losses were calculated manually using Hazen-Williams formula. Based on the results of the analysis, Figures 2-5 illustrate the distribution design results of each scenario described above.

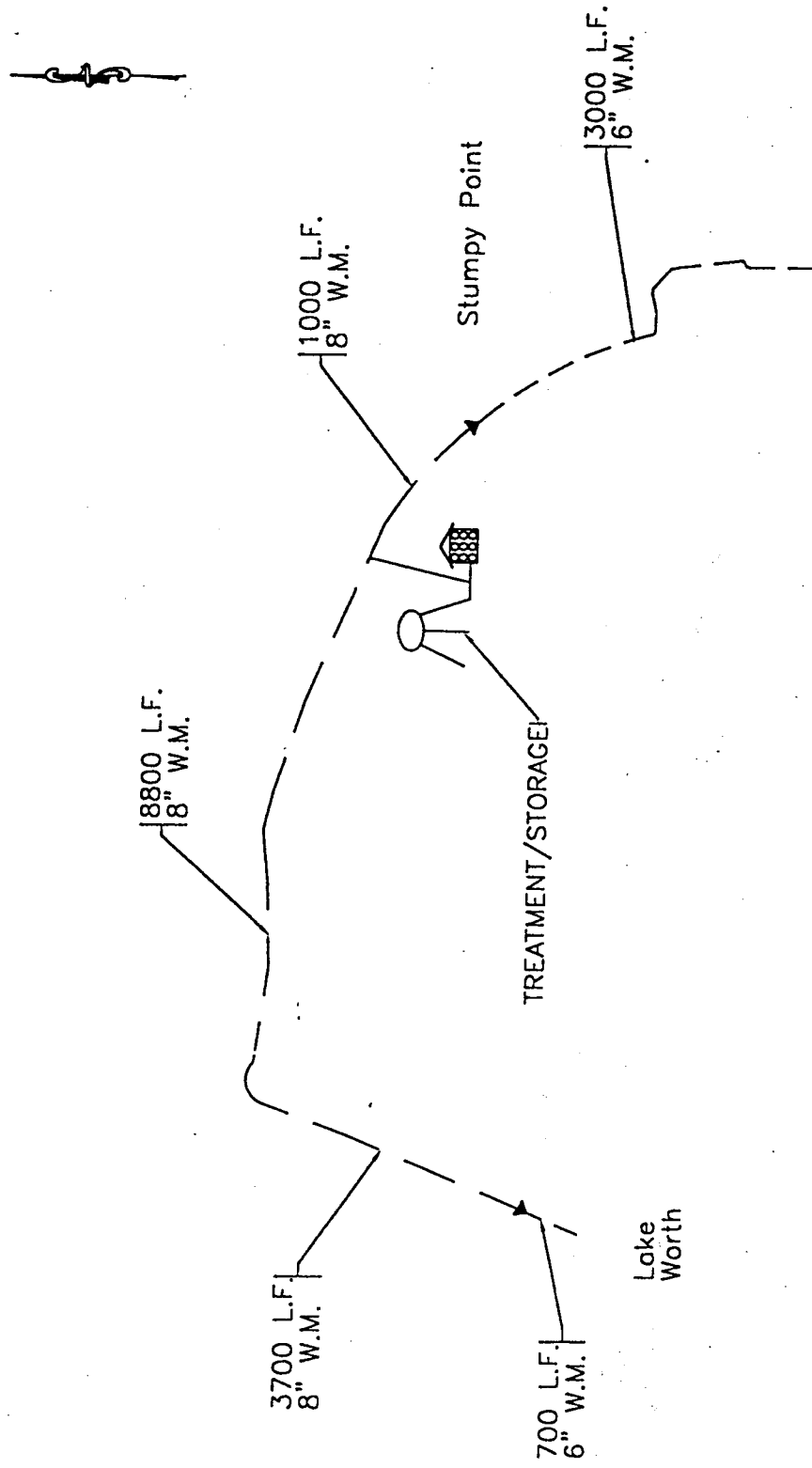


FIGURE 2. SYSTEM LAYOUT WITH FIRE PROTECTION AND UTILIZATION OF THE SITE NEAR THE COMMUNITY BUILDING.

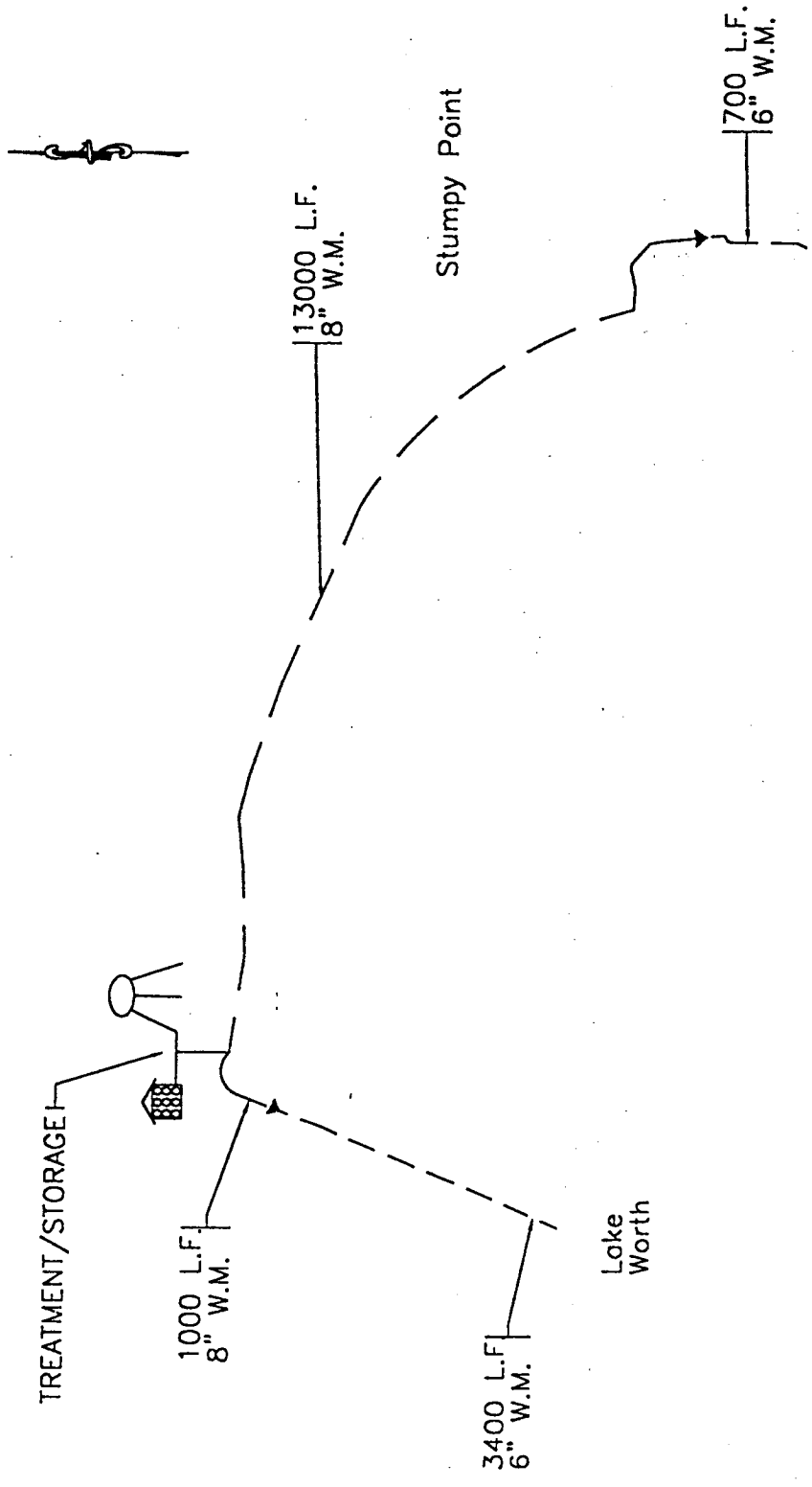


FIGURE 3. SYSTEM LAYOUT WITH FIRE PROTECTION AND UTILIZATION OF THE SITE NEAR THE N.C. HWY 264 AND SR 1100 INTERSECTION.

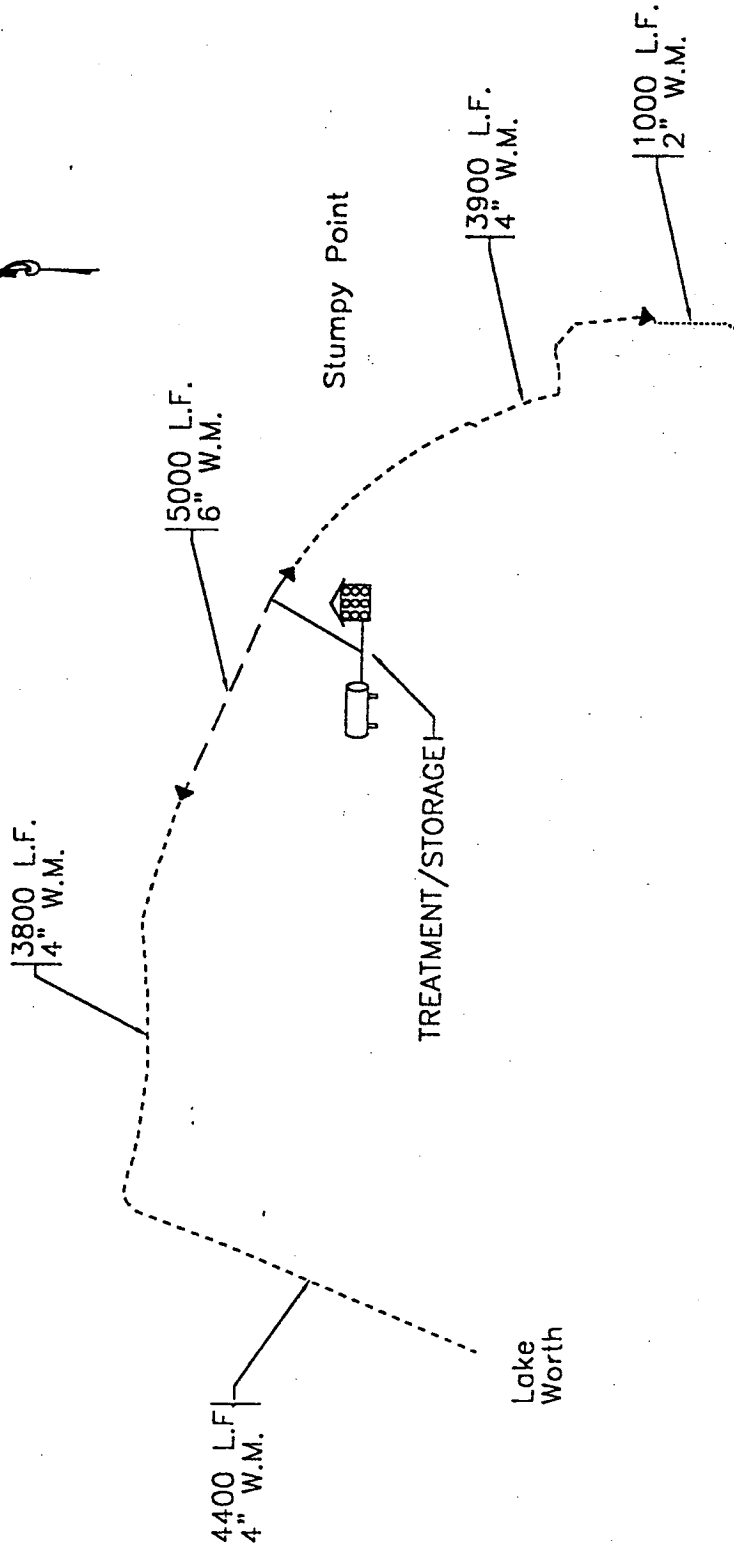


FIGURE 4. SYSTEM LAYOUT WITHOUT FIRE PROTECTION AND UTILIZATION OF THE SITE NEAR THE COMMUNITY BUILDING.

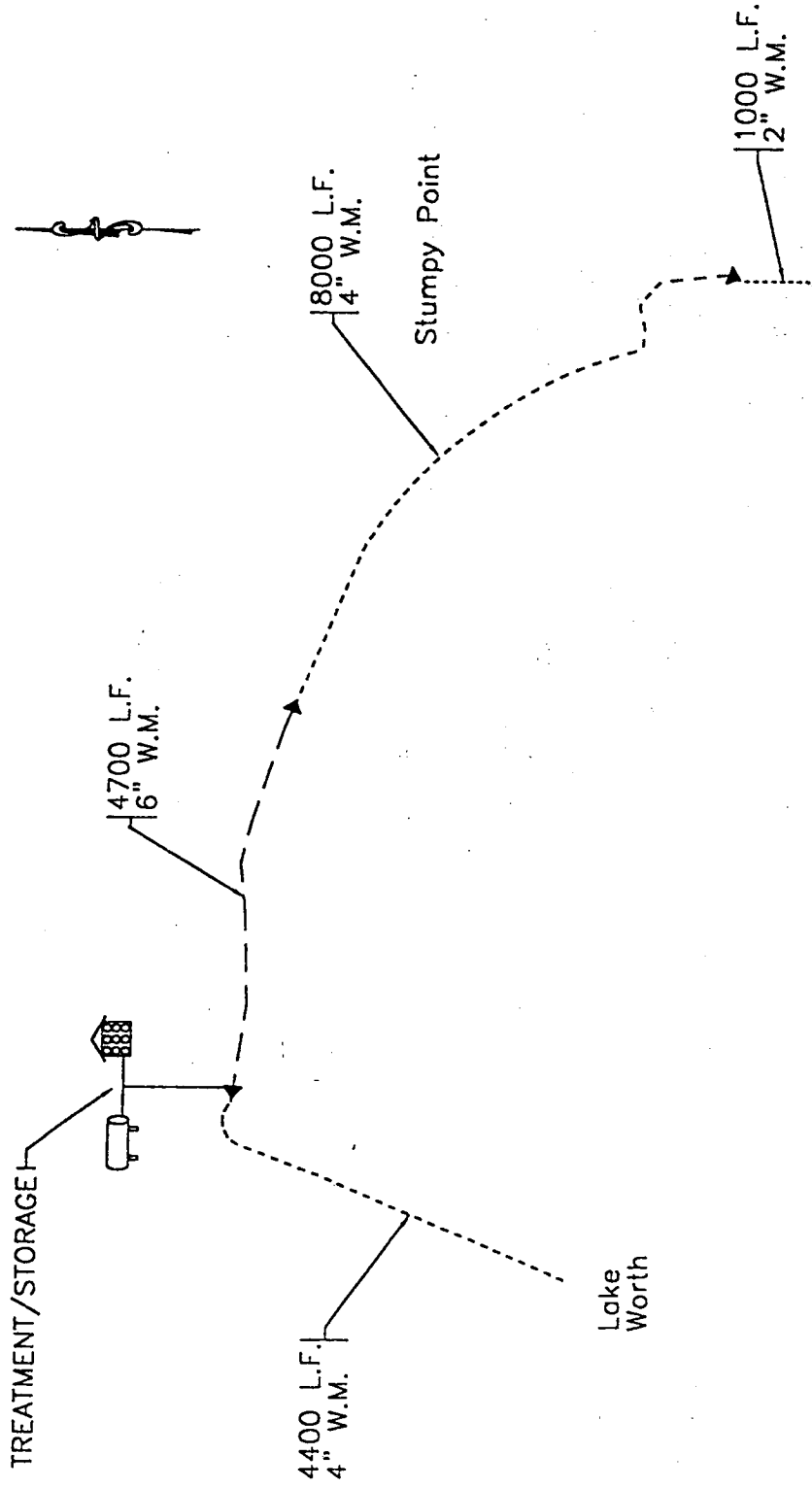


FIGURE 5. SYSTEM LAYOUT WITHOUT FIRE PROTECTION AND UTILIZATION OF THE SITE NEAR THE N.C. HWY. 264 AND SR 1100 INTERSECTION

D. COST ANALYSIS

A cost analysis was performed for the four scenarios which include production, storage, distribution, engineering and contingencies. The cost of each scenario also includes a separate total cost excluding the water main to Lake Worth (along N.C. Hwy 264). This cost is presented to allow the Lake Worth water main to be installed in a future phase.

The detailed cost analysis is contained in Appendix F of the study. A summary of the total construction cost is as follows:

Scenario I:	Fire Protection and Utilization of the Site near the Community Building	
	Total Cost:	\$1,103,825
	Total Cost Excluding Lake Worth:	\$1,031,450
Scenario II:	Fire Protection and Utilization of the Site at the NC Hwy 264 and SR 1100 intersection.	
	Total Cost:	\$1,061,575
	Total Cost Excluding Lake Worth:	\$1,000,000
Scenario III:	No Fire Protection and Utilization of the Site near the Community Building	
	Total Cost:	\$ 770,325
	Total Cost Excluding Lake Worth:	\$ 731,650
Scenario IV:	No Fire Protection and Utilization of the Site at the NC Hwy 264 and SR 1100 intersection.	
	Total Cost:	\$ 725,175
	Total Cost Excluding Lake Worth:	\$ 686,500

V. Proposed Project

A. PROJECT DESIGN

The purpose of this study was to analyze the requirements of a community water system for the Stumpy Point Community. House counts in the community estimated 118 existing establishments. Growth projections for a 20 year design period were estimated at 50% growth for a potential of 177 water customers. Design flow was estimated at 70,800 GPD.

The most economical water resource was considered to be ground water. A test well was constructed to determine water quality. The ground water quality was found to be poor with high color, iron, manganese, chloride, total suspended solids, turbidity and total organic compounds. Membrane treatment such as Reverse Osmosis is needed to treat the water. Water production will consist of 2-65 GPM wells with a 50,000 GPD Reverse Osmosis water treatment plant expandable to 75,000 GPD. The Reverse Osmosis treatment process will require a discharge in the Stumpy Point Bay. Based on conversations with regulatory agencies, no major obstacles are foreseen, however more research will be required during the preliminary design phase of the project.

Distribution and storage facilities were analyzed based on a system with and without fire protection and with facilities located near the Community Building and at the NC Hwy 264 and SR1100 intersection. Cost estimates were presented with and without service to the Lake Worth area. A system with fire protection will require a 75,000 gallon elevated storage tank, 8" and 6" water mains and fire hydrants. A system without fire

protection will require a 10,000 gallon hydropneumatic pressure tank with 6"-2" water mains.

Based on cost estimates for alternative production and storage locations, it is most economical to install the facilities at the intersection of N.C. Hwy 264 and SR 1100. The cost to provide water facilities to the five users in the Lake Worth area is also very high. Finally, it is understood that USDA-RD will not fund system upgrades for fire protection.

The proposed project will therefore consist of a water system serving the Stumpy Point community, water mains extended to Lake Worth in a future phase, production and storage facilities at the intersection and applying for USDA-RD funding for a system without fire protection. The system requirements for fire protection are also presented for benefit of the Owner in seeking additional funds.

B. COST ESTIMATE

The proposed project cost estimates were presented in Section IV as the following:

Scenario II: Fire Protection and Utilization of the Site
at the NC Hwy 264 and SR 1100
intersection, excluding Lake Worth.

Total Construction Cost: \$1,000,000

Scenario IV: No Fire Protection and Utilization of the
Site at the NC Hwy 264 and SR 1100
intersection, excluding Lake Worth.

Total Construction Cost: \$ 686,500

An itemized estimate of the total project costs are presented in the following tables:

STUMPY POINT WATER SYSTEM

SUMMARY OF TOTAL PROJECT COSTS

(Fire Protection/Exclude Lake Worth Area/Facilities
at the N.C. Hwy 264 & SR 1100 Intersection)

Total Construction Cost	
—See Breakdown	\$1,000,000
Engineering	
—PER	\$ 10,000
—Design	\$ 71,600
—Inspection	\$ 75,000
—Additional Services	
Environmental Assessment for Discharge	\$ 45,000
Reverse Osmosis Technical Consultant	\$ 30,000
Plant Site Wetlands Delineation	<u>\$ 7,500</u>
	\$ 239,100
Owner Administration, Legal and Miscellaneous	\$ 20,000
Pilot Plant Rental	\$ 10,000
Contingencies	
—5% of Construction Cost	\$ 50,000
Interest	
—one year at 5%	<u>\$ 66,455</u>
TOTAL PROJECT COST (Rounded)	\$1,396,000

STUMPY POINT WATER SYSTEM

SUMMARY OF TOTAL PROJECT COSTS

(No Fire Protection/Exclude Lake Worth Area/Facilities
at the N.C. Hwy 264 & SR 1100 Intersection)

Total Construction Cost

—See Breakdown \$ 686,500

Engineering

—PER \$ 10,000

—Design \$ 54,165

—Inspection \$ 68,600

—Additional Services

Environmental Assessment for Discharge \$ 45,000

Reverse Osmosis Technical Consultant \$ 30,000

Plant Site Wetlands Delineation \$ 7,500

\$ 215,265

Owner Administration, Legal and Miscellaneous \$ 20,000

Pilot Plant Rental \$ 10,000

Contingencies

—5% of Construction Cost \$ 34,325

Endangered Species Survey

—Performed by Biologist \$ 10,000

Interest

—one year at 5% \$ 48,800

TOTAL PROJECT COST (Rounded) \$1,025,000

C. Annual Operating Budget

1. Operation and Maintenance Costs

Operating costs for labor, chemicals, membranes, and power is estimated at \$0.60/1,000 gallons based on \$0.12/kilowatt hour power and unattended operation. Based on a 6,000 gallon/month usage per customer, this cost equates to \$425.00/month or \$3.60/month per customer for 113 customers. Other operating costs should be budgeted for tank maintenance and distribution system maintenance. Tank maintenance should include painting every 5 years at an estimated cost of \$30,000. Tank maintenance equates to approximately \$4.25 per month per user based on 113 users. Approximately \$2,500/year should be budgeted for distribution maintenance which includes water main breaks, fire hydrant breaks and painting and valve maintenance. Distribution maintenance equates to approximately \$1.75 per user per month based on 118 users. Total operation and maintenance is estimated at \$9.60 per month per user based on 113 users.

2. INCOME

The only source of income for the project is from water bills. Based on a \$25.00/month average water bill and deducting \$9.60 for operation and maintenance, \$15.40/month/user can be used for debt repayment or \$20,883/year. This is based on mandatory hook-up.

3. DEBT REPAYMENTS

The proposed project cost is \$1,025,000.00. For estimating purposes, the annual payment for a 40 year loan at 5% is \$59,758.00.

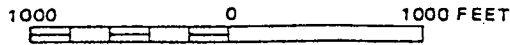
VI. Conclusions and Recommendations

It is recommended that Dare County apply for USDA-RD funds to construct a public water system to serve the Stumpy Point Community. USDA-RD funds could finance a system consisting of 13,700 L.F. of 6", 4" and 2" water mains, 2-65 GPM wells, 50,000 GPD Reverse Osmosis Water Treatment Plant (expandable to 75,000 GPD) and 10,000 gallon hydro-pneumatic pressure tank. Total system cost is \$1,025,000. Additional funds can be sought to upgrade the proposed system with fire protection consisting of 8" and 6" water mains, fire hydrants and a 75,000 gallon elevated water storage tank. Total system costs is \$1,396,000. Special studies will be required for dealing with wetlands at the plant site and the plant discharge.

APPENDIX A

MAPS

APPROXIMATE SCALE



NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

DARE COUNTY,
NORTH CAROLINA
(UNINCORPORATED AREAS)

PANEL 435 OF 900
(SEE MAP INDEX FOR PANELS NOT PRINTED)


COMMUNITY-PANEL NUMBER
375348 0435 C

MAP REVISED:
FEBRUARY 19, 1986



Federal Emergency Management Agency

KEY TO MAP

500-Year Flood Boundary	<hr style="border-top: 1px solid black;"/>	
100-Year Flood Boundary	<hr style="border-top: 1px solid black;"/>	ZONE B
Zone Designations*		
100-Year Flood Boundary	<hr style="border-top: 1px solid black;"/>	
500-Year Flood Boundary	<hr style="border-top: 1px solid black;"/>	ZONE B
Base Flood Elevation Line With Elevation In Feet**	<hr style="border-top: 1px dashed black;"/>	513
Base Flood Elevation in Feet Where Uniform Within Zone**		(EL 987)
Elevation Reference Mark		RM7x
Zone D Boundary	<hr style="border-top: 1px solid black;"/>	
River Mile		•M1.5

** Referenced to the National Geodetic Vertical Datum of 1929

*EXPLANATION OF ZONE DESIGNATIONS

ZONE	EXPLANATION
A	Areas of 100-year flood; base flood elevations and flood hazard factors not determined.
A0	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined.
AH	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown, but no flood hazard factors are determined.
A1-A30	Areas of 100-year flood; base flood elevations and flood hazard factors determined.
A99	Areas of 100-year flood to be protected by flood protection system under construction; base flood elevations and flood hazard factors not determined.
B	Areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood. (Medium shading)
C	Areas of minimal flooding. (No shading)
D	Areas of undetermined, but possible, flood hazards.
V	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors not determined.
V1-V30	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors determined.

NOTES TO USER

Certain areas not in the special flood hazard areas (Zones A and V) may be protected by flood control structures.

This map is for flood insurance and flood plain management purposes only; it does not necessarily show all areas subject to flooding in the community or all planimetric features outside special flood hazard areas.

The coastal flooding elevations shown may include the effects of wave action and may differ significantly from those developed by the National Weather Service for hurricane evacuation planning. Coastal base flood elevations apply only landward of the shoreline shown on this map.

For adjoining map panels, see separately printed Map Index

INITIAL IDENTIFICATION:

APRIL 8, 1971

FLOOD HAZARD BOUNDARY MAP REVISIONS:

JULY 1, 1974

The coastal flooding elevations shown may include the effects of wave action and may differ significantly from those developed by the National Weather Service for hurricane evacuation planning. Coastal base flood elevations apply only landward of the shoreline shown on this map.

For adjoining map panels, see separately printed Map Index.

INITIAL IDENTIFICATION:

APRIL 8, 1971

FLOOD HAZARD BOUNDARY MAP REVISIONS:

JULY 1, 1974

FLOOD INSURANCE RATE MAP EFFECTIVE:

OCTOBER 6, 1978

FLOOD INSURANCE RATE MAP REVISIONS:

Map revised October 1, 1983

to add coastal barriers.

Map revised February 19, 1986

to change special flood hazard areas, base flood elevations, and to reflect new FEMA title block.

To determine if flood insurance is available in this community, contact your insurance agent, or call the National Flood Insurance Program, at (800) 638-6620.



APPROXIMATE SCALE

1000 0 1000 FEET

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

SUMNER
TOWNSHIP

WELLS

RIVER

ELEVATION REFERENCE MARKS

REFERENCE ELEVATION
MARKS (FINDING)

DESIGNATION OF LOCATION

These marks are located at 27 1/2 miles
from the center of the town of Sumner, Mo.
The marks are located at the following
places: 1. At the top of the hill
2. At the top of the hill
3. At the top of the hill
4. At the top of the hill
5. At the top of the hill
6. At the top of the hill
7. At the top of the hill
8. At the top of the hill
9. At the top of the hill
10. At the top of the hill

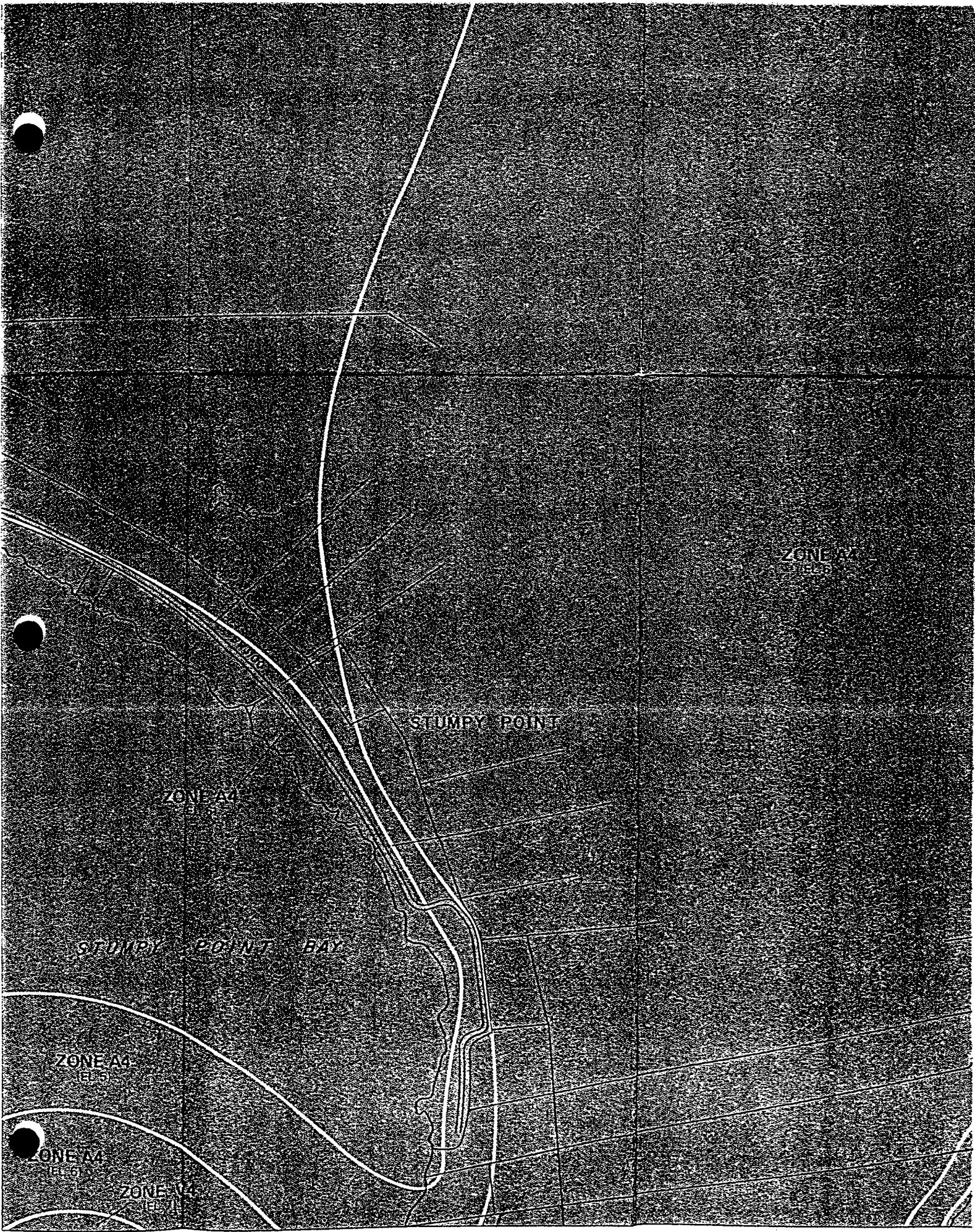
WELLS

WELLS

WELLS

WELLS

WELLS



ZONE M
(E 5)

STUMPY POINT

ZONE A1
(E 5)

STUMPY POINT BAY

ZONE A1
(E 5)

ZONE M
(E 5)

ZONE A1
(E 5)

The soil is subject to rare flooding. Flooding occurs only during periods of strong-wind tides or hurricanes:

The Duckston soil is poorly drained. Typically, the surface layer is very dark grayish brown fine sand about 3 inches thick. The upper part of the underlying material is dark grayish brown fine sand and light brownish gray sand. The next part is dark gray sand. The lower part to a depth of 80 inches is gray sand.

Permeability is very rapid above the water table in the Duckston soil. The soil ranges from extremely acid to moderately alkaline. The seasonal high water table is between the surface and 1 foot below the surface. This soil is subject to rare flooding for brief periods.

Included with these soils in mapping are small areas of Newhan soils. These included soils are in the higher positions on dunes, commonly near the ocean side. They make up about 15 percent of the map unit.

The Corolla and Duckston soils are used mainly as habitat for coastal wildlife. The native vegetation varies, depending on the location within mapped areas and on the amount of exposure to salt. The natural vegetation on the Corolla soil consists of sparse stands of saltmeadow cordgrass, northern bayberry, eveningprimrose, largeleaf pennywort, scrubby live oak, blueberry, wild olive, persimmon, ragweed, and Virginia creeper. In areas affected by salt spray, the natural vegetation on the Duckston soil consists of dense stands of saltmeadow cordgrass, waxmyrtle, and northern bayberry. The areas at a greater distance from the salt spray support greenbrier, eastern baccharis, scattered black willow, blueberry, wild olive, and persimmon.

These soils are not used as cropland or woodland because of exposure to salt spray and flooding by salt water.

Wetness, the hazard of flooding, and the lack of adequate outlets for a drainage system are the major limitations affecting the use of these soils for building site development, sanitary facilities, and recreational development. A poor filtering capacity and seepage are additional limitations on sites for sanitary facilities.

The Corolla and Duckston soils are in capability subclass VII_s and VII_w, respectively. No woodland ordination symbol is assigned.

CuA—Currituck mucky peat, 0 to 1 percent slopes, frequently flooded. This nearly level, very poorly drained soil is in broad marshes on the sound side of the Outer Banks north of Collington Island. It also is in depressions between the forested dunes near Buxton. Mapped areas generally are long and narrow and range from 10 to 700 acres in size.

Typically, the surface layer is dark brown muck about 17 inches thick. Below this to a depth of 40 inches is

muck that is very dark brown in the upper part and black in the lower part. The underlying material to a depth of 65 inches is sand. It is black in the upper part and dark grayish brown in the lower part.

Permeability is moderate or moderately rapid. The soil ranges from very strongly acid to moderately acid in the upper organic layers and extremely acid to moderately acid in the lower organic and mineral layers. The seasonal high water table is 1 foot above to 1 foot below the surface. This soil is frequently flooded by changing tides for very long periods.

Included with this soil in mapping are small areas of Carteret and Hobonny soils. Carteret soils are sandy throughout. Hobonny soils are organic throughout. The included soils generally are near the outer edge of the mapped areas. They make up about 10 percent of the map unit.

The dominant native vegetation is black needlerush, maidencane, sawgrass, eastern baccharis, waxmyrtle, willow, and cattail. This soil is used as habitat for wildlife. It is not used for agricultural purposes, commercial tree production, or urban or recreational development because of the frequent flooding, extreme wetness, poor trafficability, and exposure to salt water.

The capability subclass is VIII_w. No woodland ordination symbol is assigned.

DtA—Duckston fine sand, 0 to 2 percent slopes, occasionally flooded. This nearly level, poorly drained soil is on flats and in slight depressions on the Outer Banks. Areas are irregular in shape and range from 5 to 50 acres in size.

Typically, the surface layer is fine sand about 8 inches thick. It is very dark grayish brown in the upper part and dark grayish brown in the lower part. Below this to a depth of 80 inches is sand that is light brownish gray in the upper part and dark gray and gray in the lower part.

Permeability is very rapid above the water table. The soil ranges from extremely acid to moderately alkaline. The seasonal high water table is at or near the surface and fluctuates somewhat in relation to the tides. This soil is occasionally flooded by storm tides for brief periods. It is exposed to varying amounts of salt spray, depending on the proximity to the ocean.

Included with this soil in mapping are small areas of Conaby, Corolla, Newhan, and Osier soils, which are near the outer edge of the mapped areas. Corolla soils are on low knolls, and Newhan soils are on the higher knolls. Conaby soils are on flats and in troughs and depressions, and Osier soils are along marshes and in depressions. Included soils make up 10 to 15 percent of the map unit.

The Duckston soil is used mainly as habitat for

pine, live oak, cherrybark oak, hickory, black cherry, and eastern redcedar. The understory consists mainly of American holly, waxmyrtle, yaupon holly, devilwood, and muscadine grape. The sandy texture, droughtiness, and the slope are the main limitations affecting woodland.

This soil is not used as cropland because of droughtiness and the rapid leaching of plant nutrients.

Moderately steep and steep slopes and seepage limit the use of this soil for building site development and sanitary facilities. Grading can create more favorable slopes for building, but it destroys the native vegetation and causes severe soil blowing. Also, the dune ridges should not be graded because they provide protection from ocean storms and improve the stability of the barrier islands. Soil blowing can be controlled and stability increased by additional plantings of adapted grasses and shrubs. The sandy texture and the excessive slope are the main limitations affecting recreational development.

The capability subclass is VII_s. Based on loblolly pine as the indicator species, the woodland ordination symbol is 6S.

HoA—Hobonny muck, 0 to 1 percent slopes, frequently flooded. This nearly level, very poorly drained soil generally is in marshes on Roanoke Island and the eastern shore of the mainland. It also is on the sound side of the Outer Banks. Mapped areas are irregular in shape and range from 10 to several hundred acres in size.

Typically, the surface layer is very dark grayish brown muck about 16 inches thick. Below this to a depth of 72 inches is muck that is very dark grayish brown in the upper part and dark gray in the lower part.

Permeability is moderate. The soil ranges from extremely acid to strongly acid throughout the organic layers. At least one of the organic layers is very strongly acid or strongly acid. The mineral layers, if they occur, are extremely acid to moderately acid. The seasonal high water table is commonly at or slightly above the surface. The soil is frequently flooded for very long periods.

Included with this soil in mapping are scattered areas of Currituck soils, which have sandy sediments at a depth of 16 to 51 inches. These soils are in landscape positions similar to those of the Hobonny soil. They make up about 10 percent of the map unit.

Most of the acreage of the Hobonny soil supports natural vegetation and is used as habitat for wildlife. The natural vegetation is primarily black needlerush, big cordgrass, maidencane, sawgrass, and cattail (fig. 4).

This soil is not used for cropland, woodland, or urban or recreational development because of excessive

wetness, flooding, excess humus, low strength, and exposure to salt water.

The capability subclass is VII_w. No woodland ordination symbol is assigned.

HyA—Hyde loam, 0 to 2 percent slopes, rarely flooded. This nearly level, very poorly drained soil is on broad flats on the mainland. It is mainly in the central part of the county, around East Lake Community. Mapped areas are irregular in shape and range from 50 to 500 acres in size.

Typically, the surface layer is 13 inches thick. It is black loam in the upper part and very dark gray loam in the lower part. The subsoil is clay loam about 27 inches thick. It is grayish brown in the upper part and dark grayish brown in the lower part. The upper part of the underlying material is gray fine sandy loam. The lower part to a depth of 70 inches is light brownish gray loamy fine sand.

The organic matter content in the surface layer is high. Permeability is moderately slow. The soil is extremely acid to neutral. The seasonal high water table is at or near the surface. This soil is subject to rare flooding.

Included with this soil in mapping are small areas of the clayey Cape Fear soils and the organic Ponzer soils and small areas of Roper soils, which have an organic surface layer. The included soils are mostly in landscape positions similar to those of the Hyde soil. They are near the outer edge of the mapped areas. They make up about 10 percent of the map unit.

The Hyde soil is used mainly as woodland. In places it is used as cropland.

In cultivated areas the principal crops are corn, small grain, and soybeans. Wetness and flooding are the main limitations. Conservation tillage, cover crops, and a cropping system that includes grasses and legumes help to maintain tilth and crop production. Spring tillage and fall harvest can be delayed because of wetness. A scarcity of suitable outlets and the moderately slow permeability limit the installation of drainage systems.

In areas of woodland, loblolly pine, red maple, green ash, sweetgum, elm, pond pine, water oak, and willow oak are the dominant species. The understory includes mainly American holly, sweetbay, sourwood, reeds, and southern waxmyrtle. Wetness and flooding are the main limitations affecting woodland. Installation of a drainage system and bedding of rows help to overcome the excessive wetness. Using standard wheeled and tracked equipment when the soil is wet results in deep ruts, compacts the soil, and damages the roots of trees. The use of equipment should be limited to dry periods from midsummer through early fall, when the water table is lowest.



Figure 4.—Blackneedle rush on Hobonny muck, 0 to 1 percent slopes, frequently flooded. The wooded area in the background is Osier fine sand, 0 to 2 percent slopes, rarely flooded.

Wetness and flooding are the main limitations affecting urban and recreational uses. The severity of these limitations can be reduced by a drainage system.

The capability subclass is IIIw in drained areas, VIw in undrained areas. Based on loblolly pine as the indicator species, the woodland ordination symbol is 10W.

IcA—Icaria loamy fine sand, 0 to 2 percent slopes, rarely flooded. This nearly level, very poorly drained soil is on flats and in depressions on Roanoke Island and in Manns Harbor. Mapped areas are irregular in shape and range from 5 to 100 acres in size.

Typically, the surface is covered with 3 inches of partially decomposed needles, leaves, and twigs. The surface layer is black loamy fine sand about 12 inches thick. The upper part of the subsoil is light brownish gray sandy clay loam about 21 inches thick. The lower part to a depth of 72 inches is dark brown and dark reddish brown sand.

Permeability is moderate in the subsoil. The soil

ranges from extremely acid to strongly acid. The seasonal high water table is at or near the surface. This soil is subject to rare flooding by strong-wind tides and hurricanes.

Included with this soil in mapping are small areas of Hobonny, Ponzer, Belhaven, and Leon soils. These soils are along the outer edge of the mapped areas. They make up 10 to 15 percent of the map unit.

The Icaria soil is used mainly as woodland. The dominant trees are loblolly pine, sweetgum, red maple, water oak, and willow oak. The understory includes mainly American holly, sweetbay, greenbrier, and reeds. Wetness and flooding are the main limitations affecting woodland. Installation of a drainage system and bedding of rows help to overcome excessive wetness.

The Icaria soil in Dare County generally is not used for agricultural purposes. Wetness and flooding are the main limitations.

The main limitation affecting urban and recreational uses is wetness. In some areas flooding is a hazard during hurricanes and strong-wind tides.

and low strength are the main limitations affecting woodland. This soil has a poor load-supporting capacity.

In cultivated areas the principal crops are corn and soybeans. Wetness and flooding are the major limitations affecting cultivation. Spring tillage and fall harvest may be delayed because of the wetness. Large initial applications of lime are necessary for crop production. During spring planting, soil blowing may occur. Conservation practices, such as conservation tillage, field borders, and windbreaks, help to control soil blowing.

The main limitations affecting urban and recreational uses are wetness, flooding, excess humus, and low strength.

The capability subclass is VIIw in undrained areas, IVw in drained areas. Based on loblolly pine as the indicator species, the woodland ordination symbol is 6W.

PsB—Psamments, 0 to 6 percent slopes. This map unit consists of areas where the surface layer and most of the subsoil have been removed. It includes borrow pits, fill and dredged areas, and areas of landfill. Most or all of the natural soil has been disturbed or covered.

The borrow pits are excavated areas from which the soil material has been removed for use as fill for construction. The cuts are 3 to 15 feet deep. The base slope in these cuts is level to gently sloping. Most cuts have two or more short, nearly vertical side slopes. The exposed surface layer consists mainly of sandy marine deposits. The borrow pits range from 3 to about 25 acres in size. Borrow pits less than 3 acres in size are shown on the detailed maps by a special symbol.

Some of the borrow pits have been reclaimed and seeded to grass. A few areas are naturally reseeded to wild grasses, weeds, and loblolly pine. The pits are poorly suited to plant growth because of low fertility.

The fill and dredged areas are commonly near building sites. The fill areas generally are elevated by additions of sandy material, which help to prepare them for more intensive uses, such as building sites. Slopes are nearly level and gently sloping. Most areas are suitable for plant growth. Natural fertility, the available water capacity, and other soil properties vary. The dredged spoils commonly have a poor filtering capacity. As a result, the effluent from septic tanks can pollute ground water and marshes.

The natural soil in landfill areas has been altered. The excavated trenches are filled with alternating layers of solid refuse and sandy soil material. A final cover of about 2 feet of sandy soil is on the surface. After the final cover is added, the surface ranges from nearly level to gently sloping.

Included in mapping is a small area of undisturbed soil. This soil is suited to plant growth. Natural fertility is generally low. A permanent vegetative cover protects the soil from erosion.

The characteristics of the soil material within the mapped areas vary, and the soils commonly require onsite examination for most interpretations.

No capability subclass or woodland ordination symbol is assigned.

PuA—Pungo muck, 0 to 2 percent slopes, rarely flooded. This nearly level, very poorly drained soil is on broad flats throughout the mainland. Mapped areas are irregular in shape and range from 100 to several thousand acres in size.

Typically, the surface is covered with 2 inches of partially decomposed needles, leaves, and twigs. The surface layer is dark reddish brown muck about 10 inches thick. Below this to a depth of 65 inches is dark reddish brown muck. The underlying material to a depth of 72 inches is gray loam.

The surface layer consists of highly decomposed, pastelike organic material. Permeability is moderately slow. The soil is extremely acid in the organic layers unless limed. The underlying mineral layers range from extremely acid to neutral. Logs, roots, and stumps are common throughout the profile. The seasonal high water table is at or near the surface. This soil is subject to rare flooding.

Included with this soil in mapping are scattered small areas of Belhaven and Ponzer soils. These soils are very poorly drained. Belhaven soils have organic layers less than 51 inches thick. Ponzer soils do not have pastelike organic layers. Also included are soils in which the underlying mineral soil is sand. The included soils are in landscape positions similar to those of the Pungo soil. They make up about 10 percent of the map unit.

The Pungo soil is used mainly as woodland (fig. 6). A few areas are used as cropland.

In areas of woodland, the dominant native trees are loblolly pine, pond pine, Atlantic white cedar, red maple, swamp tupelo, baldcypress, and sweetbay. The understory includes mainly inkberry, fetterbush, lyonia, greenbrier, and huckleberry. Wetness, flooding, and low strength are the main limitations affecting woodland. This organic soil has a poor load-supporting capacity.

In cultivated areas this soil has been intensively drained and is used for corn or soybeans. The main limitations affecting agricultural uses are wetness, flooding, and the high percentage of logs, stumps, and roots in the soil. The pastelike organic layers may harden when the soil is overdrained. They are slow to rewet unless they are pulverized.



APPENDIX B

HEALTH SURVEY RESULTS



FOR YOUR INFORMATION BULLETIN

January 27, 1998

SUBJ: 75% Grant Qualification Requirements

TO: Engineers in District VI

FROM: Jacki Surles, Rural Development Specialist

The change in our regulations now requires that we must show that the 75% grant determination now has two qualifiers:

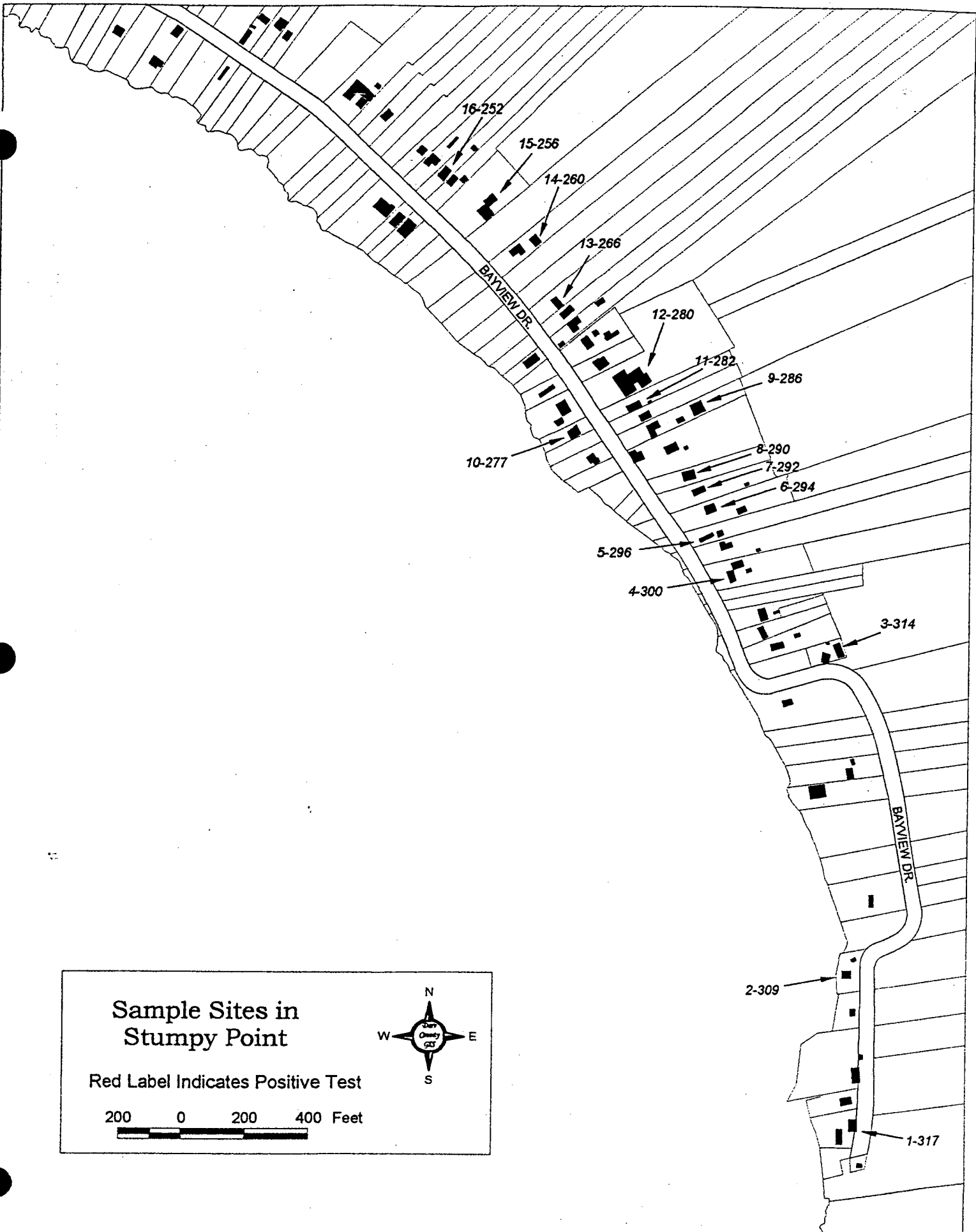
- a. Median household income is below the higher of poverty line or 80% of state nonmetro median income AND
- b. Project is necessary to alleviate a health or sanitary problem.

See the following info sheets regarding North Carolina policy. As further clarification, surveys taken to confirm the existence of a sanitary or health problem impacting at least 51% of the residential users will be completed as follows:

- (1) System has less than 500 users. Sample 1 of 4 users or 70 samples, whichever is less. Sample is to be random, indicated on a map by number and a list developed correlating that number to a name and results of the survey.
- (2) System has 500 or more users. Sample 1 of 8 users or 110 samples, whichever is less. Sample is to be random, indicated in a map by number, and a list developed correlating that number to a name and the results of the survey.

If you are working with a client who may be a potential borrower from RUS, please call me to arrange a meeting prior to submitting your initial application as some new requirements must be met before we can process the initial application.


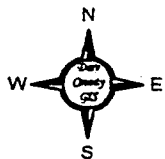
Thanks for your continued cooperation with me and our office.

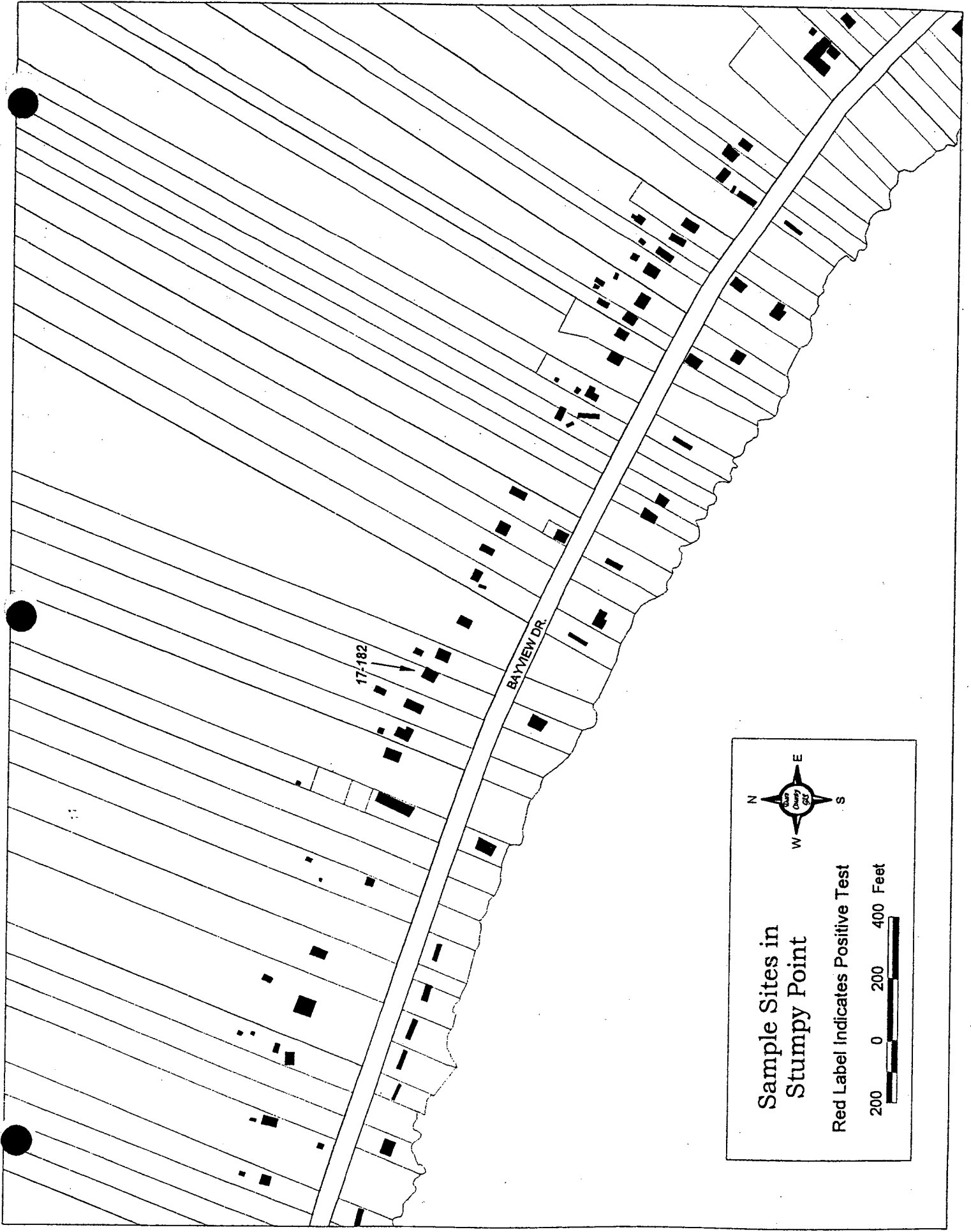


Sample Sites in Stumpy Point

Red Label Indicates Positive Test

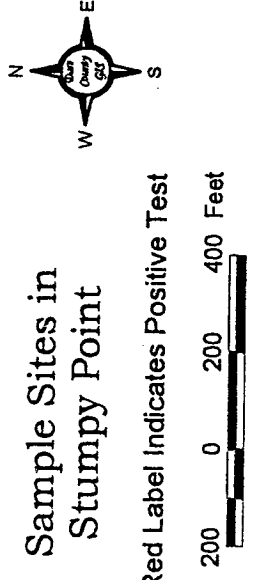
200 0 200 400 Feet





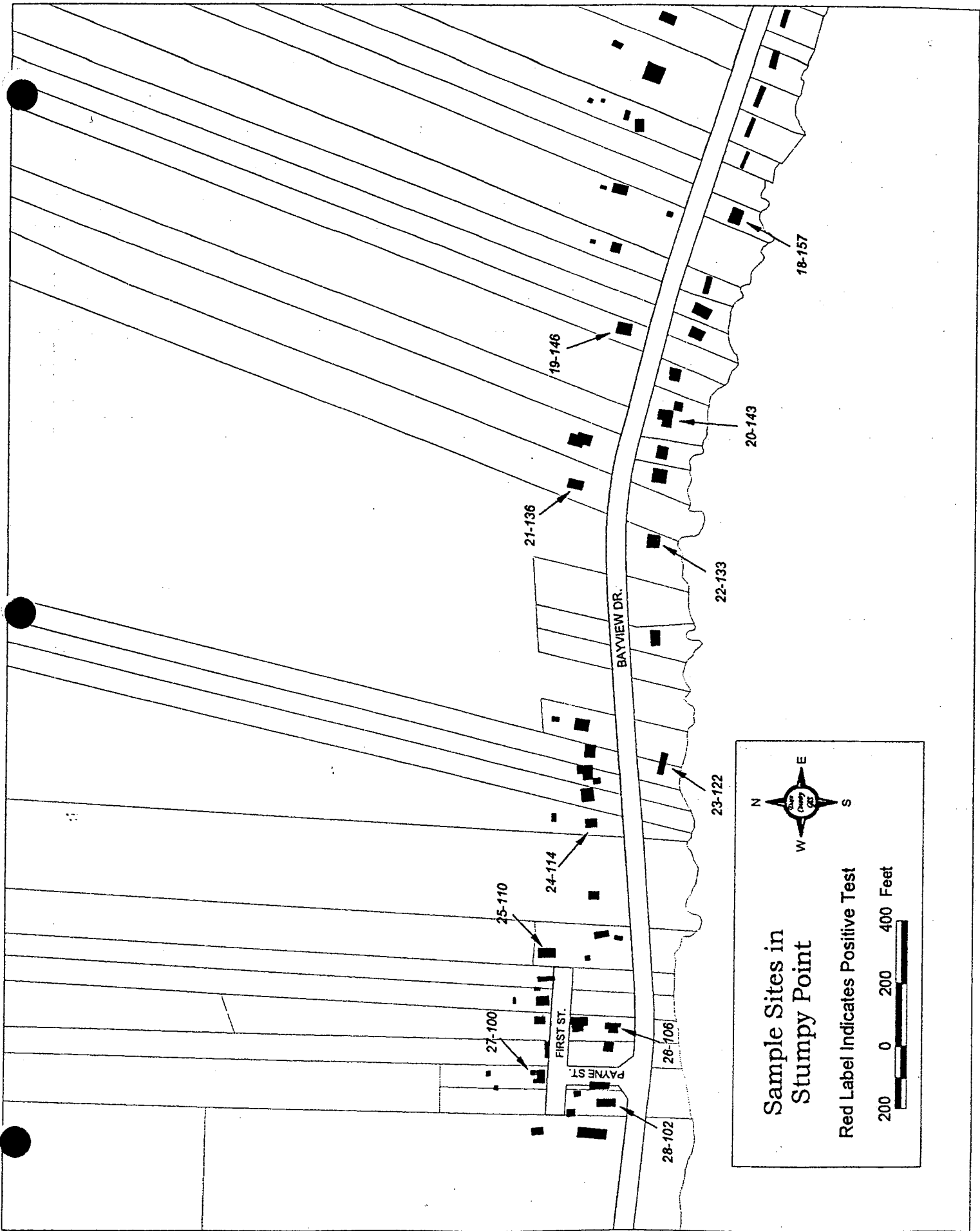
Sample Sites in
Stumpy Point

Red Label Indicates Positive Test



200 0 200 400 Feet

The complex block contains a compass rose with cardinal directions N, S, E, and W, and a scale bar marked at 0, 200, and 400 feet. The text "Sample Sites in Stumpy Point" is positioned above the compass rose, and "Red Label Indicates Positive Test" is positioned below it. The scale bar is at the bottom of the block.



Sample Sites in Stumpy Point

Red Label Indicates Positive Test

200 0 200 400 Feet

N E S W



COUNTY OF DARE

KILL DEVIL HILLS, NORTH CAROLINA 27948

BACTERIOLOGICAL ANALYSIS

600 MUSTIAN ST.
PHONE (919) 441-7788

Laboratory ID#: 3 7 6 8 8

Water System ID#: Private Well

County: Dare

Name of System: Private Stumpy Pt.

Sample Type: (1=Routine; 2=Repeat; 3=Replacement; 4=Plan Approval; 5=Other/Non-compliance)

Collected on: DATE 05/27/98 (MM/DD/YY)

TIME: 11:10 A M (HH:MM AM or PM)

Location Where Collected: Fishermans Point

Location Type: 5 (1=First User Tap; 2=General User Tap; 3=Last/End User Tap; 4=Source/Intake; 5=Other)

Location Code: 317

Collected By: ~~CRM~~ CRM

FOR REPEAT SAMPLE:

Previous Positive Location Code:

Positive Collection Date: / /
Time: : :

Proximity: (1=Same; 2=Upstream;
3=Downstream)

FOR REPLACEMENT SAMPLE:

Original Sample Type: (1=Routine;
2=Repeat; 3=Plan Approval; 4=Other)

Original Collection Date: / /

Time: : : M

Mail Results To:

Dare County Health Department

PO Box 1000

Manteo, NC 27954

Telephone No. (919) 473-1101 or 441-2143

Type of Supply :

- Community NTNC
 Non-Community Adjacent
 Private Campground

Type of Treatment:

- Chlorinated
 Non-Chlorinated
 Free Chlorine Residual:

Combined Chlorine Residual:

CONTAMINANT	METHOD	RESULT		
		PRESENT	ABSENT	INVALID
Total Coliform	<u>312</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fecal/E. Coli	<u>316</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Heterotrophic P.C.	<u> </u>	<u> </u>	<u> </u> /ml	<u> </u>

(number)

INVALID CODES

- 1) Confluent Growth/No Coliform Found
- 2) TNTC/No Coliform Found
- 3) Turbid Culture/No Coliform Found
- 4) Over 30 Hours Old
- 5) Improper Sample or Analysis

() Repeat Samples Required

() Replacement Sample Required

Date Analysis Begun: 5/27/98

Time Analysis Begun: 5:55 P M

Date Analysis Completed: 5/28/98

Time Analysis Completed: 9:55 P M

Laboratory Log # E 2798B

Certified By: AS

COMMENTS: Rac. at 5:30 AM

Col. # 640AR

LAND OF BEGINNINGS

PRINTED ON RECYCLED PAPER



COUNTY OF DARE

KILL DEVIL HILLS, NORTH CAROLINA 27948

BACTERIOLOGICAL ANALYSIS

600 MUSTIAN ST.
PHONE (919) 441-7788

Laboratory ID#: 37688

Water System ID#: Private Well

County: Dare

Name of System: Stumpy Point

Sample Type: ___ (1=Routine; 2=Repeat; 3=Replacement; 4=Plan Approval; 5=Other/Non-compliance)

Collected on: DATE 05127198 (MM/DD/YY)

TIME: 11:20 AM (HH:MM AM or PM)

Location Where Collected: Michael E. C. Gray

Location Type: 5 (1=First User Tap; 2=General User Tap; 3=Last/End User Tap; 4=Source/Intake; 5=Other)

Location Code: 309

Collected By: CRM

FOR REPEAT SAMPLE:

Previous Positive Location Code: _____

Positive Collection Date: / /
Time: :

Proximity: ___ (1=Same; 2=Upstream;
3=Downstream)

FOR REPLACEMENT SAMPLE:

Original Sample Type: ___ (1=Routine;
2=Repeat; 3=Plan Approval; 4=Other)

Original Collection Date: / /

Time: : M

Mail Results To:

Dare County Health Department

PO Box 1000

Manteo, NC 27954

Telephone No. (919) 473-1101 or 441-2143

Type of Supply:

- Community NTNC
 Non-Community Adjacent
 Private Campground

Type of Treatment:

- Chlorinated
 Non-Chlorinated
Free Chlorine Residual: _____
Combined Chlorine Residual: _____

CONTAMINANT	METHOD	RESULT		
		PRESENT	ABSENT	INVALID
Total Coliform	<u>312</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Fecal/E. Coli	<u>316</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Heterotrophic P.C.	_____			

/ml
(number)

INVALID CODES

- 1) Confluent Growth/No Coliform Found
- 2) TNTC/No Coliform Found
- 3) Turbid Culture/No Coliform Found
- 4) Over 30 Hours Old
- 5) Improper Sample or Analysis

() Repeat Samples Required

() Replacement Sample Required

Date Analysis Begun: 5127198

Time Analysis Begun: 6:00 PM

Date Analysis Completed: 5128198

Time Analysis Completed: 10:00 PM M

Laboratory Log # E 2798C

Certified By: RM

COMMENTS: Repeat 5:30 pm

Col # 640AR

LAND OF BEGINNINGS

PRINTED ON RECYCLED PAPER



COUNTY OF DARE

KILL DEVIL HILLS, NORTH CAROLINA 27948

BACTERIOLOGICAL ANALYSIS

600 MUSTIAN ST.
PHONE (919) 441-7788

Laboratory ID#: 37688

Water System ID#: Private Well

County: Dare

Name of System: Stumpy Point

Sample Type: (1=Routine; 2=Repeat; 3=Replacement; 4=Plan Approval; 5=Other/Non-compliance)

Collected on: DATE 05/27/98 (MM/DD/YY)

TIME: 11:35 AM (HH:MM AM or PM)

Location Where Collected: Dennis R. Paschall

Location Type: 5 (1=First User Tap; 2=General User Tap; 3=Last/End User Tap; 4=Source/Intake; 5=Other)

Location Code: 314

Collected By: CRM

FOR REPEAT SAMPLE:

Previous Positive Location Code:

Positive Collection Date: / /
Time: : :

Proximity: (1 =Same; 2=Upstream;
3=Downstream)

FOR REPLACEMENT SAMPLE:

Original Sample Type: (1=Routine;
2=Repeat; 3=Plan Approval; 4 =Other)

Original Collection Date: / /

Time: : : M

Mail Results To:

Dare County Health Department

PO Box 1000

Manteo, NC 27954

Telephone No. (919) 473-1101 or 441-2143

Type of Supply :

- Community NTNC
 Non-Community Adjacent
 Private Campground

Type of Treatment:

- Chlorinated
 Non-Chlorinated
 Free Chlorine Residual:
 Combined Chlorine Residual:

CONTAMINANT	METHOD	RESULT		
		PRESENT	ABSENT	INVALID
Total Coliform	<u>312</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Fecal/E. Coli	<u>316</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Heterotrophic P.C.	<u> </u>	<u> </u>	<u> </u>	<u> </u> /ml (number)

INVALID CODES

- 1) Confluent Growth/No Coliform Found
- 2) TNTC/No Coliform Found
- 3) Turbid Culture/No Coliform Found
- 4) Over 30 Hours Old
- 5) Improper Sample or Analysis

() Repeat Samples Required

() Replacement Sample Required

Date Analysis Begun: 5/27/98

Time Analysis Begun: 6:05 PM

Date Analysis Completed: 5/28/98

Time Analysis Completed: 10:05 P M

Laboratory Log # E2998d

Certified By:

COMMENTS: Rec at 5:30 pm

Pol 640AR

LAND OF BEGINNINGS

PRINTED ON RECYCLED PAPER



COUNTY OF DARE

KILL DEVIL HILLS, NORTH CAROLINA 27948

BACTERIOLOGICAL ANALYSIS

600 MUSTIAN ST.
PHONE (919) 441-7788

Laboratory ID#: 3 7 6 8 8

Water System ID#: Private Well

County: Dare

Name of System: Stumpy Point

Sample Type: (1=Routine; 2=Repeat; 3=Replacement; 4=Plan Approval; 5=Other/Non-compliance)

Collected on: DATE 0 5 12 7 1 9 8 (MM/DD/YY)

TIME: 1 1 : 5 5 A M (HH:MM AM or PM)

Location Where Collected: Theresa Midgett

Location Type: 5 (1=First User Tap; 2=General User Tap; 3=Last/End User Tap; 4=Source/Intake; 5=Other)

Location Code: 3 0 0

Collected By: CRM

FOR REPEAT SAMPLE:

Previous Positive Location Code:

Positive Collection Date: / /
Time: : :

Proximity: (1=Same; 2=Upstream;
3=Downstream)

FOR REPLACEMENT SAMPLE:

Original Sample Type: (1=Routine;
2=Repeat; 3=Plan Approval; 4=Other)

Original Collection Date: / /
Time: : : M

Mail Results To:

Dare County Health Department

PO Box 1000

Manteo, NC 27954

Telephone No. (919) 473-1101 or 441-2143

Type of Supply :

Community NTNC
 Non-Community Adjacent
 Private Campground

Type of Treatment:

Chlorinated
 Non-Chlorinated

Free Chlorine Residual:

Combined Chlorine Residual:

CONTAMINANT	METHOD	RESULT		
		PRESENT	ABSENT	INVALID
Total Coliform	<u>3 1 2</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fecal/E. Coli	<u>3 1 6</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Heterotrophic P.C.	<u> </u>	<u> </u>	<u> </u>	<u> </u> /ml

(number)

INVALID CODES

- 1) Confluent Growth/No Coliform Found
- 2) TNTC/No Coliform Found
- 3) Turbid Culture/No Coliform Found
- 4) Over 30 Hours Old
- 5) Improper Sample or Analysis

() Repeat Samples Required

() Replacement Sample Required

Date Analysis Begun: 5 12 7 1 9 8

Time Analysis Begun: 6 : 1 0 P M

Date Analysis Completed: 5 1 2 8 1 9 8

Time Analysis Completed: 1 0 : 1 0 P M

Laboratory Log # E 2798 E

Certified By: M?

COMMENTS: Rec At 5:30 pm

Call # 640 AR

LAND OF BEGINNINGS

PRINTED ON RECYCLED PAPER



COUNTY OF DARE

KILL DEVIL HILLS, NORTH CAROLINA 27948

BACTERIOLOGICAL ANALYSIS

600 MUSTIAN ST.
PHONE (919) 441-7788

Laboratory ID#: 3 7 6 8 8

Water System ID#: Private Well

County: Dare

Name of System: Stumpy Point

Sample Type: (1=Routine; 2=Repeat; 3=Replacement; 4=Plan Approval; 5=Other/Non-compliance)

Collected on: DATE 05/27/98 (MM/DD/YY)

TIME: 12:05 PM (HH:MM AM or PM)

Location Where Collected: Hall

Location Type: 5 (1=First User Tap; 2=General User Tap; 3=Last/End User Tap; 4=Source/Intake; 5=Other)

Location Code: 2 9 6

Collected By: CRM

FOR REPEAT SAMPLE:

Previous Positive Location Code:

Positive Collection Date: / /
Time: : :

Proximity: (1=Same; 2=Upstream;
3=Downstream)

FOR REPLACEMENT SAMPLE:

Original Sample Type: (1=Routine;
2=Repeat; 3=Plan Approval; 4=Other)

Original Collection Date: / /

Time: : : M

Mail Results To:

Dare County Health Department

PO Box 1000

Manteo, NC 27954

Telephone No. (919) 473-1101 or 441-2143

Type of Supply :

- Community NTNC
 Non-Community Adjacent
 Private Campground

Type of Treatment:

- Chlorinated
 Non-Chlorinated
 Free Chlorine Residual:

Combined Chlorine Residual:

CONTAMINANT	METHOD	RESULT		
		PRESENT	ABSENT	INVALID
Total Coliform	<u>312</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Fecal/E. Coli	<u>316</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Heterotrophic P.C.	<u> </u>	<u> </u>	<u> </u>	<u> </u>

/ml
(number)

INVALID CODES

- 1) Confluent Growth/No Coliform Found
- 2) TNTC/No Coliform Found
- 3) Turbid Culture/No Coliform Found
- 4) Over 30 Hours Old
- 5) Improper Sample or Analysis

() Repeat Samples Required

() Replacement Sample Required

Date Analysis Begun: 5/27/98

Time Analysis Begun: 6:15 PM

Date Analysis Completed: 5/28/98

Time Analysis Completed: 10:15 PM

Laboratory Log # E 2798 F

Certified By: AM

COMMENTS: Rec at 5:30 PM

Col # 640 AR

LAND OF BEGINNINGS

PRINTED ON RECYCLED PAPER



COUNTY OF DARE

KILL DEVIL HILLS, NORTH CAROLINA 27948

BACTERIOLOGICAL ANALYSIS

600 MUSTIAN ST.
PHONE (919) 441-7788

Laboratory ID#: 3 7 6 8 8

Water System ID#: Private Well

County: Dare

Name of System: Stumpy Point

Sample Type: ___ (1=Routine; 2=Repeat; 3=Replacement; 4=Plan Approval; 5=Other/Non-compliance)

Collected on: DATE 0 5 1 2 7 1 9 8 (MM/DD/YY)

TIME: ___:___:___ M (HH:MM AM or PM)

Location Where Collected: Robert V. Johnson

Location Type: 5 (1=First User Tap; 2=General User Tap; 3=Last/End User Tap; 4=Source/Intake; 5=Other)

Location Code: 2 9 4

Collected By: CRM

FOR REPEAT SAMPLE:

Previous Positive Location Code: _____

Positive Collection Date: / /
Time: : :

Proximity: ___ (1=Same; 2=Upstream;
3=Downstream)

FOR REPLACEMENT SAMPLE:

Original Sample Type: ___ (1=Routine;
2=Repeat; 3=Plan Approval; 4=Other)

Original Collection Date: / /
Time: : : M

Mail Results To:

Dare County Health Department
PO Box 1000
Manteo, NC 27954
Telephone No. (919) 473-1101 or 441-2143

Type of Supply: Community NTNC
 Non-Community Adjacent
 Private Campground

Type of Treatment: Chlorinated
 Non-Chlorinated
Free Chlorine Residual: _____
Combined Chlorine Residual: _____

CONTAMINANT	METHOD	PRESENT	RESULT		INVALID
			ABSENT	INVALID	
Total Coliform	<u>3 1 2</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fecal/E. Coli	<u>3 1 2</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Heterotrophic P.C.	_____				

(number) /ml

INVALID CODES

- 1) Confluent Growth/No Coliform Found
- 2) TNTC/No Coliform Found
- 3) Turbid Culture/No Coliform Found
- 4) Over 30 Hours Old
- 5) Improper Sample or Analysis

() Repeat Samples Required

() Replacement Sample Required

Date Analysis Begun: 5 1 2 7 1 9 8

Time Analysis Begun: 6:20 P M

Date Analysis Completed: 5 1 2 8 1 9 8

Time Analysis Completed: 10:20 P M

Laboratory Log # E 2798 E

Certified By: AYJ

COMMENTS: Rec @ 5:30 PM

Col # 640 AR.

LAND OF BEGINNINGS

PRINTED ON RECYCLED PAPER



COUNTY OF DARE

KILL DEVIL HILLS, NORTH CAROLINA 27948

BACTERIOLOGICAL ANALYSIS

600 MUSTIAN ST.
PHONE (919) 441-7788

Laboratory ID#: 3 7 6 8 8

Water System ID#: Private Well

County: Dare

Name of System: ~~Carroll Payne~~ Stumpy Point

Sample Type: (1=Routine; 2=Repeat; 3=Replacement; 4=Plan Approval; 5=Other/Non-compliance)

Collected on: DATE 5/27/98 (MM/DD/YY)

TIME: 12:20 PM (HH:MM AM or PM)

Location Where Collected: Carroll Payne

Location Type: 5 (1=First User Tap; 2=General User Tap; 3=Last/End User Tap; 4=Source/Intake; 5=Other)

Location Code: 2 4 2

Collected By: CRM

FOR REPEAT SAMPLE:

Previous Positive Location Code:

Positive Collection Date: / /
Time: : :

Proximity: (1=Same; 2=Upstream;
3=Downstream)

FOR REPLACEMENT SAMPLE:

Original Sample Type: (1=Routine;
2=Repeat; 3=Plan Approval; 4=Other)

Original Collection Date: / /

Time: : : M

Mail Results To:

Dare County Health Department

PO Box 1000

Manteo, NC 27954

Telephone No. (919) 473-1101 or 441-2143

Type of Supply:

- Community NTNC
 Non-Community Adjacent
 Private Campground

Type of Treatment:

- Chlorinated
 Non-Chlorinated
Free Chlorine Residual:
Combined Chlorine Residual:

CONTAMINANT	METHOD	RESULT		
		PRESENT	ABSENT	INVALID
Total Coliform	<u>312</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Fecal/E. Coli	<u>316</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Heterotrophic P.C.	<u> </u>	<u> </u>	<u> </u> /ml (number)	<u> </u>

INVALID CODES

- 1) Confluent Growth/No Coliform Found
- 2) TNTC/No Coliform Found
- 3) Turbid Culture/No Coliform Found
- 4) Over 30 Hours Old
- 5) Improper Sample or Analysis

() Repeat Samples Required

() Replacement Sample Required

Date Analysis Begun: 5/27/98

Time Analysis Begun: 6:25 PM

Date Analysis Completed: 5/28/98

Time Analysis Completed: 10:25 PM

Laboratory Log # E 2778 H

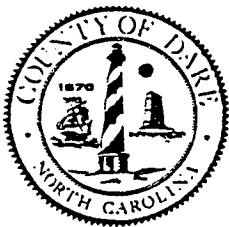
Certified By: AS

COMMENTS: Let Q. 5:30 PM

LI # 640 AR

LAND OF BEGINNINGS

PRINTED ON RECYCLED PAPER



COUNTY OF DARE

KILL DEVIL HILLS, NORTH CAROLINA 27948

BACTERIOLOGICAL ANALYSIS

600 MUSTIAN ST.
PHONE (919) 441-7788

Laboratory ID#: 3 7 6 8 8

Water System ID#: Private Well

County: Dare

Name of System: Stumpy Point

Sample Type: (1=Routine; 2=Repeat; 3=Replacement; 4=Plan Approval; 5=Other/Non-compliance)

Collected on: DATE 05122198 (MM/DD/YY)

TIME: 12:30 PM (HH:MM AM or PM)

Location Where Collected: R. D. Price

Location Type: 5 (1=First User Tap; 2=General User Tap; 3=Last/End User Tap; 4=Source/Intake; 5=Other)

Location Code: 290

Collected By: CRM

FOR REPEAT SAMPLE:

Previous Positive Location Code:

Positive Collection Date: / /
Time: : :

Proximity: (1 =Same; 2=Upstream;
3=Downstream)

FOR REPLACEMENT SAMPLE:

Original Sample Type: (1=Routine;
2=Repeat; 3=Plan Approval; 4 =Other)

Original Collection Date: / /

Time: : : M

Mail Results To:

Dare County Health Department

PO Box 1000

Manteo, NC 27954

Telephone No. (919) 473-1101 or 441-2143

Type of Supply :

- Community NTNC
 Non-Community Adjacent
 Private Campground

Type of Treatment:

- Chlorinated
 Non-Chlorinated
Free Chlorine Residual:
Combined Chlorine Residual:

CONTAMINANT	METHOD	RESULT		
		PRESENT	ABSENT	INVALID
Total Coliform	<u>312</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Fecal/E. Coli	<u>316</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Heterotrophic P.C.	<u> </u>	<u> </u>	<u> </u> /ml	<u> </u>

(number)

INVALID CODES

- 1) Confluent Growth/No Coliform Found
- 2) TNTC/No Coliform Found
- 3) Turbid Culture/No Coliform Found
- 4) Over 30 Hours Old
- 5) Improper Sample or Analysis

() Repeat Samples Required

() Replacement Sample Required

Date Analysis Begun: 5122198

Time Analysis Begun: 6:30 PM

Date Analysis Completed: 5122198

Time Analysis Completed: 10:30 PM

Laboratory Log # E2798E

Certified By: RTB

COMMENTS: Rec'd 5:30 pm

Col 640 AR

LAND OF BEGINNINGS

PRINTED ON RECYCLED PAPER



COUNTY OF DARE

KILL DEVIL HILLS, NORTH CAROLINA 27948

BACTERIOLOGICAL ANALYSIS

600 MUSTIAN ST.
PHONE (919) 441-7788

Laboratory ID#: 3 7 6 8 8

Water System ID#: Private Well

County: Dare

Name of System: Stump PT.

Sample Type: (1=Routine; 2=Repeat; 3=Replacement; 4=Plan Approval; 5=Other/Non-compliance)

Collected on: DATE 0 5 12 7 19 8 (MM/DD/YY) TIME: 1 2 : 4 5 P M (HH:MM AM or PM)

Location Where Collected: Steve Midgett

Location Type: 5 (1=First User Tap; 2=General User Tap; 3=Last/End User Tap; 4=Source/Intake; 5=Other)

Location Code: 2 8 6

Collected By: CRM

FOR REPEAT SAMPLE:

Previous Positive Location Code:

Positive Collection Date: / /
Time: : :

Proximity: (1 =Same; 2=Upstream;
3=Downstream)

FOR REPLACEMENT SAMPLE:

Original Sample Type: (1=Routine;
2=Repeat; 3=Plan Approval; 4 =Other)

Original Collection Date: / /

Time: : : M

Mail Results To:

Dare County Health Department

PO Box 1000

Manteo, NC 27954

Telephone No. (919) 473-1101 or 441-2143

Type of Supply :

- Community NTNC
 Non-Community Adjacent
 Private Campground

Type of Treatment:

- Chlorinated
 Non-Chlorinated
Free Chlorine Residual:
Combined Chlorine Residual:

CONTAMINANT	METHOD	RESULT		
		PRESENT	ABSENT	INVALID
Total Coliform	<u>3 1 2</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Fecal/E. Coli	<u>3 1 6</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Heterotrophic P.C.	<u> </u>	<u> </u>	<u> </u> /ml	<u> </u>

(number)

INVALID CODES

- 1) Confluent Growth/No Coliform Found
- 2) TNTC/No Coliform Found
- 3) Turbid Culture/No Coliform Found
- 4) Over 30 Hours Old
- 5) Improper Sample or Analysis

() Repeat Samples Required

() Replacement Sample Required

Date Analysis Begun: 5 12 7 19 8

Time Analysis Begun: 6 : 3 5 P M

Date Analysis Completed: 5 1 28 19 8

Time Analysis Completed: 1 0 : 3 5 P M

Laboratory Log # E 2798 J

Certified By: AG

COMMENTS: Rec @ 5:30 PM

Col # 640 AR

LAND OF BEGINNINGS

PRINTED ON RECYCLED PAPER



COUNTY OF DARE

KILL DEVIL HILLS, NORTH CAROLINA 27948

BACTERIOLOGICAL ANALYSIS

600 MUSTIAN ST.
PHONE (919) 441-7788

Laboratory ID#: 3 7 6 8 8

Water System ID#: Private Well

County: Dare

Name of System: Stump PT

Sample Type: (1=Routine; 2=Repeat; 3=Replacement; 4=Plan Approval; 5=Other/Non-compliance)

Collected on: DATE 5/27/98 (MM/DD/YY)

TIME: 12:55 M (HH:MM AM or PM)

Location Where Collected: Jeff Best

Location Type: 5 (1=First User Tap; 2=General User Tap; 3=Last/End User Tap; 4=Source/Intake; 5=Other)

Location Code: 277

Collected By: CRM

FOR REPEAT SAMPLE:

FOR REPLACEMENT SAMPLE:

Previous Positive Location Code:

Original Sample Type: (1=Routine; 2=Repeat; 3=Plan Approval; 4=Other)

Positive Collection Date: / /
Time: : :

Original Collection Date: / /

Proximity: (1=Same; 2=Upstream; 3=Downstream)

Time: : : M

Mail Results To:

Type of Supply :

- Community NTNC
 Non-Community Adjacent
 Private Campground

Dare County Health Department

PO Box 1000

Manteo, NC 27954

Type of Treatment:

- Chlorinated
 Non-Chlorinated
Free Chlorine Residual:
Combined Chlorine Residual:

Telephone No. (919) 473-1101 or 441-2143

CONTAMINANT	METHOD	RESULT		
		PRESENT	ABSENT	INVALID
Total Coliform	<u>312</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Feca/E. Coli	<u>316</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Heterotrophic P.C.	<u> </u>	<u> </u>	<u> </u>	<u> </u>

/ml
(number)

INVALID CODES

- 1) Confluent Growth/No Coliform Found
- 2) TNTC/No Coliform Found
- 3) Turbid Culture/No Coliform Found
- 4) Over 30 Hours Old
- 5) Improper Sample or Analysis

() Repeat Samples Required

() Replacement Sample Required

Date Analysis Begun: 5/27/98

Time Analysis Begun: 6:40 PM

Date Analysis Completed: 5/28/98

Time Analysis Completed: 10:40 PM

Laboratory Log # E2798K

Certified By:

COMMENTS: Rep. @ 5:30pm

C-1#640AR

LAND OF BEGINNINGS

PRINTED ON RECYCLED PAPER



COUNTY OF DARE

KILL DEVIL HILLS, NORTH CAROLINA 27948

BACTERIOLOGICAL ANALYSIS

600 MUSTIAN ST.
PHONE (919) 441-7788

Laboratory ID#: 37688

Water System ID#: Private Well

County: Dare

Name of System: Stumpy Pt.

Sample Type: (1=Routine; 2=Repeat; 3=Replacement; 4=Plan Approval; 5=Other/Non-compliance)

Collected on: DATE 05127198 (MM/DD/YY) TIME: 1:00 P M (HH:MM AM or PM)

Location Where Collected: TAL REST

Location Type: 5 (1=First User Tap; 2=General User Tap; 3=Last/End User Tap; 4=Source/Intake; 5=Other)

Location Code: 282

Collected By: CRM

FOR REPEAT SAMPLE:

Previous Positive Location Code:

Positive Collection Date: / /
Time: : :

Proximity: (1=Same; 2=Upstream;
3=Downstream)

FOR REPLACEMENT SAMPLE:

Original Sample Type: (1=Routine;
2=Repeat; 3=Plan Approval; 4=Other)

Original Collection Date: / /

Time: : : M

Mail Results To:

Dare County Health Department

PO Box 1000

Manteo, NC 27954

Telephone No. (919) 473-1101 or 441-2143

Type of Supply:

- Community NTNC
 Non-Community Adjacent
 Private Campground

Type of Treatment:

- Chlorinated
 Non-Chlorinated
Free Chlorine Residual:
Combined Chlorine Residual:

CONTAMINANT	METHOD	RESULT		
		PRESENT	ABSENT	INVALID
Total Coliform	<u>312</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fecal/E. Coli	<u>316</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Heterotrophic P.C.	<u> </u>	<u> </u>	<u> </u> /ml	<u> </u>

(number)

INVALID CODES

- 1) Confluent Growth/No Coliform Found
- 2) TNTC/No Coliform Found
- 3) Turbid Culture/No Coliform Found
- 4) Over 30 Hours Old
- 5) Improper Sample or Analysis

() Repeat Samples Required

() Replacement Sample Required

Date Analysis Begun: 5127198

Time Analysis Begun: 6:45 P M

Date Analysis Completed: 5128198

Time Analysis Completed: 10:45 M

Laboratory Log # 52792

Certified By:

COMMENTS: Doc @ 5:30 PM

P.1 640 AR

LAND OF BEGINNINGS

PRINTED ON RECYCLED PAPER



COUNTY OF DARE

KILL DEVIL HILLS, NORTH CAROLINA 27948

BACTERIOLOGICAL ANALYSIS

600 MUSTIAN ST.
PHONE (919) 441-7788

Laboratory ID#: 3 7 6 8 8

Water System ID#: Private Well

County: Dare

Name of System: Stumpy Pt.

Sample Type: (1=Routine; 2=Repeat; 3=Replacement; 4=Plan Approval; 5=Other/Non-compliance)

Collected on: DATE 05127198 (MM/DD/YY)

TIME: 1:10 PM (HH:MM AM or PM)

Location Where Collected: Ben Bar Bee

Location Type: 5 (1=First User Tap; 2=General User Tap; 3=Last/End User Tap; 4=Source/Intake; 5=Other)

Location Code: 280

Collected By: CEM

FOR REPEAT SAMPLE:

Previous Positive Location Code:

Positive Collection Date: / /
Time: : :

Proximity: (1=Same; 2=Upstream;
3=Downstream)

FOR REPLACEMENT SAMPLE:

Original Sample Type: (1=Routine;
2=Repeat; 3=Plan Approval; 4=Other)

Original Collection Date: / /
Time: : : M

Mail Results To:

Dare County Health Department
PO Box 1000
Manteo, NC 27954
Telephone No. (919) 473-1101 or 441-2143

Type of Supply: Community NTNC
 Non-Community Adjacent
 Private Campground

Type of Treatment: Chlorinated
 Non-Chlorinated
Free Chlorine Residual:
Combined Chlorine Residual:

CONTAMINANT	METHOD	RESULT		
		PRESENT	ABSENT	INVALID
Total Coliform	<u>312</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fecal/E. Coli	<u>312</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Heterotrophic P.C.	<u> </u>	<u> </u>	<u> </u> /ml (number)	<u> </u>

INVALID CODES

- 1) Confluent Growth/No Coliform Found
- 2) TNTC/No Coliform Found
- 3) Turbid Culture/No Coliform Found
- 4) Over 30 Hours Old
- 5) Improper Sample or Analysis

() Repeat Samples Required

() Replacement Sample Required

Date Analysis Begun: 5127198

Time Analysis Begun: 6:50 PM

Date Analysis Completed: 5128198

Time Analysis Completed: 10:50 PM

Laboratory Log # E2738M

Certified By: AS

COMMENTS: Rec'd 5:30 AM

Col # 640 AR

LAND OF BEGINNINGS

PRINTED ON RECYCLED PAPER



COUNTY OF DARE

KILL DEVIL HILLS, NORTH CAROLINA 27948

BACTERIOLOGICAL ANALYSIS

600 MUSTIAN ST.
PHONE (919) 441-7788

Laboratory ID#: 3 7 6 8 8

Water System ID#: Private Well

County: Dare

Name of System: Stumpy PT

Sample Type: (1=Routine; 2=Repeat; 3=Replacement; 4=Plan Approval; 5=Other/Non-compliance)

Collected on: DATE 0 5 12 7 19 8 (MM/DD/YY)

TIME: 1:15 PM (HH:MM AM or PM)

Location Where Collected: Billy Knight

Location Type: 5 (1=First User Tap; 2=General User Tap; 3=Last/End User Tap; 4=Source/Intake; 5=Other)

Location Code: 266

Collected By: CLM

FOR REPEAT SAMPLE:

FOR REPLACEMENT SAMPLE:

Previous Positive Location Code:

Original Sample Type: (1=Routine; 2=Repeat; 3=Plan Approval; 4=Other)

Positive Collection Date: / /
Time: :

Original Collection Date: / /

Proximity: (1=Same; 2=Upstream; 3=Downstream)

Time: : M

Mail Results To:

Dare County Health Department

PO Box 1000

Manteo, NC 27954

Telephone No. (919) 473-1101 or 441-2143

Type of Supply:

- Community NTNC
 Non-Community Adjacent
 Private Campground

Type of Treatment:

- Chlorinated
 Non-Chlorinated
Free Chlorine Residual:
Combined Chlorine Residual:

CONTAMINANT	METHOD	RESULT		
		PRESENT	ABSENT	INVALID
Total Coliform	<u>312</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Fecal/E. Coli	<u>314</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Heterotrophic P.C.	<u> </u>	<u> </u>	<u> </u> /ml	<u> </u>

(number)

INVALID CODES

- 1) Confluent Growth/No Coliform Found
- 2) TNTC/No Coliform Found
- 3) Turbid Culture/No Coliform Found
- 4) Over 30 Hours Old
- 5) Improper Sample or Analysis

() Repeat Samples Required

() Replacement Sample Required

Date Analysis Begun: 0 5 12 7 19 8

Time Analysis Begun: 6:55 P M

Date Analysis Completed: 5 12 8 19 8

Time Analysis Completed: 10:55 P M

Laboratory Log # E 2792 N

Certified By:

COMMENTS: Rec'd 5:30 PM

1.1 264 AD

LAND OF BEGINNINGS

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COUNTY OF DARE

KILL DEVIL HILLS, NORTH CAROLINA 27948

BACTERIOLOGICAL ANALYSIS

600 MUSTIAN ST.
PHONE (919) 441-7788

Laboratory ID#: 37688

Water System ID#: Private Well

County: Dare

Name of System: Stumpy Pt

Sample Type: (1=Routine; 2=Repeat; 3=Replacement; 4=Plan Approval; 5=Other/Non-compliance)

Collected on: DATE 05127198 (MM/DD/YY)

TIME: 1:20 P M (HH:MM AM or PM)

Location Where Collected: H.O. Golden

Location Type: 5 (1=First User Tap; 2=General User Tap; 3=Last/End User Tap; 4=Source/Intake; 5=Other)

Location Code: 260

Collected By: CRM

FOR REPEAT SAMPLE:

FOR REPLACEMENT SAMPLE:

Previous Positive Location Code:

Original Sample Type: (1=Routine; 2=Repeat; 3=Plan Approval; 4=Other)

Positive Collection Date: / /
Time: : :

Original Collection Date: / /

Proximity: (1=Same; 2=Upstream; 3=Downstream)

Time: : : M

Mail Results To:

Dare County Health Department

PO Box 1000

Manteo, NC 27954

Telephone No. (919) 473-1101 or 441-2143

Type of Supply :

- Community NTNC
- Non-Community Adjacent
- Private Campground

Type of Treatment:

- Chlorinated
- Non-Chlorinated

Free Chlorine Residual:

Combined Chlorine Residual:

CONTAMINANT	METHOD	RESULT		
		PRESENT	ABSENT	INVALID
Total Coliform	<u>312</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fecal/E. Coli	<u>316</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Heterotrophic P.C.	<u> </u>	<u> </u>	<u> </u>	<u> </u>

(number)

INVALID CODES

- 1) Confluent Growth/No Coliform Found
- 2) TNTC/No Coliform Found
- 3) Turbid Culture/No Coliform Found
- 4) Over 30 Hours Old
- 5) Improper Sample or Analysis

() Repeat Samples Required

() Replacement Sample Required

Date Analysis Begun: 05127198

Time Analysis Begun: 7:00 P M

Date Analysis Completed: 5129198

Time Analysis Completed: 11:00 P M

Laboratory Log # E27580

Certified By:

COMMENTS: Ex @ 5:30 pm

Col # 640 AR

LAND OF BEGINNINGS

PRINTED ON RECYCLED PAPER



COUNTY OF DARE

KILL DEVIL HILLS, NORTH CAROLINA 27948

BACTERIOLOGICAL ANALYSIS

600 MUSTIAN ST.
PHONE (919) 441-7788

Laboratory ID#: 3 7 6 8 8

Water System ID#: Private Well

County: Dare

Name of System: Stumpy PT

Sample Type: (1=Routine; 2=Repeat; 3=Replacement; 4=Plan Approval; 5=Other/Non-compliance)

Collected on: DATE 05127198 (MM/DD/YY) TIME: 1:25 PM (HH:MM AM or PM)

Location Where Collected: Shiloh United Methodist Church

Location Type: 5 (1=First User Tap; 2=General User Tap; 3=Last/End User Tap; 4=Source/Intake; 5=Other)

Location Code: 256 Collected By: CRM

FOR REPEAT SAMPLE:

Previous Positive Location Code:

Positive Collection Date: / /
Time: : :

Proximity: (1 =Same; 2=Upstream;
3=Downstream)

FOR REPLACEMENT SAMPLE:

Original Sample Type: (1=Routine;
2=Repeat; 3=Plan Approval; 4 =Other)

Original Collection Date: / /

Time: : : M

Mail Results To:

Dare County Health Department

PO Box 1000

Manteo, NC 27954

Telephone No. (919) 473-1101 or 441-2143

Type of Supply :

- Community NTNC
 Non-Community Adjacent
 Private Campground

Type of Treatment:

- Chlorinated
 Non-Chlorinated
Free Chlorine Residual:
Combined Chlorine Residual:

CONTAMINANT	METHOD	RESULT		
		PRESENT	ABSENT	INVALID
Total Coliform	<u>372</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Fecal/E. Coli	<u>314</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Heterotrophic P.C.	<u> </u>	<u> </u>	<u> </u> /ml	<u> </u>

(number:)

INVALID CODES

- 1) Confluent Growth/No Coliform Found
- 2) TNTC/No Coliform Found
- 3) Turbid Culture/No Coliform Found
- 4) Over 30 Hours Old
- 5) Improper Sample or Analysis

() Repeat Samples Required

() Replacement Sample Required

Date Analysis Begun: 05127198

Time Analysis Begun: 2:05 PM

Date Analysis Completed: 5128198

Time Analysis Completed: 11:05 PM

Laboratory Log # 227988

Certified By:

COMMENTS: rec @ 5:40 pm

Col # LUGAR

LAND OF BEGINNINGS

PRINTED ON RECYCLED PAPER



COUNTY OF DARE

KILL DEVIL HILLS, NORTH CAROLINA 27948

BACTERIOLOGICAL ANALYSIS

600 MUSTIAN ST.
PHONE (919) 441-7788

Laboratory ID#: 37688

Water System ID#: Private Well

County: Dare

Name of System: Stungy PT

Sample Type: ___ (1=Routine; 2=Repeat; 3=Replacement; 4=Plan Approval; 5=Other/Non-compliance)

Collected on: DATE 05127198 (MM/DD/YY)

TIME: 1:35 P M (HH:MM AM or PM)

Location Where Collected: Lori Rosser

Location Type: 5 (1=First User Tap; 2=General User Tap; 3=Last/End User Tap; 4=Source/Intake; 5=Other)

Location Code: 252

Collected By: CRM

FOR REPEAT SAMPLE:

Previous Positive Location Code: _____

Positive Collection Date: / /
Time: :

Proximity: ___ (1 =Same; 2=Upstream;
3=Downstream)

FOR REPLACEMENT SAMPLE:

Original Sample Type: ___ (1=Routine;
2=Repeat; 3=Plan Approval; 4 =Other)

Original Collection Date: / /
Time: : M

Mail Results To:

Dare County Health Department
PO Box 1000
Manteo, NC 27954
Telephone No. (919) 473-1101 or 441-2143

Type of Supply: Community NTNC
 Non-Community Adjacent
 Private Campground

Type of Treatment: Chlorinated
 Non-Chlorinated
Free Chlorine Residual: _____
Combined Chlorine Residual: _____

CONTAMINANT	METHOD	RESULT		
		PRESENT	ABSENT	INVALID
Total Coliform	<u>312</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fecal/E. Coli	<u>316</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Heterotrophic P.C.	_____	_____	_____ /ml	_____

(number)

- ### INVALID CODES
- 1) Confluent Growth/No Coliform Found
 - 2) TNTC/No Coliform Found
 - 3) Turbid Culture/No Coliform Found
 - 4) Over 30 Hours Old
 - 5) Improper Sample or Analysis

() Repeat Samples Required

() Replacement Sample Required

Date Analysis Begun: 5127198

Time Analysis Begun: 7:10 P M

Date Analysis Completed: 5128198

Time Analysis Completed: 11:10 P M

Laboratory Log # E 2798 B

Certified By: MB

COMMENTS: col # 640 AR Rec'd 5130 pm

LAND OF BEGINNINGS

PRINTED ON RECYCLED PAPER



COUNTY OF DARE

KILL DEVIL HILLS, NORTH CAROLINA 27948

BACTERIOLOGICAL ANALYSIS

600 MUSTIAN ST.
PHONE (919) 441-7788

Laboratory ID#: 3 7 6 8 8

Water System ID#: Private Well

County: Dare

Name of System: Stumpy PT

Sample Type: (1=Routine; 2=Repeat; 3=Replacement; 4=Plan Approval; 5=Other/Non-compliance)

Collected on: DATE 05/27/98 (MM/DD/YY)

TIME: 2:00 P M (HH:MM AM or PM)

Location Where Collected: Charles Rain Meeting

Location Type: 5 (1=First User Tap; 2=General User Tap; 3=Last/End User Tap; 4=Source/Intake; 5=Other)

Location Code: 182

Collected By: CRM

FOR REPEAT SAMPLE:

Previous Positive Location Code:

Positive Collection Date: / /
Time: : :

Proximity: (1 =Same; 2=Upstream;
3=Downstream)

FOR REPLACEMENT SAMPLE:

Original Sample Type: (1=Routine;
2=Repeat; 3=Plan Approval; 4 =Other)

Original Collection Date: / /

Time: : : M

Mail Results To:

Dare County Health Department

PO Box 1000

Manteo, NC 27954

Telephone No. (919) 473-1101 or 441-2143

Type of Supply :

- Community NTNC
- Non-Community Adjacent
- Private Campground

Type of Treatment:

- Chlorinated
- Non-Chlorinated
- Free Chlorine Residual:
- Combined Chlorine Residual:

CONTAMINANT	METHOD	RESULT		
		PRESENT	ABSENT	INVALID
Total Coliform	<u>312</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Fecal/E. Coli	<u>316</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Heterotrophic P.C.	<u> </u>	<u> </u>	<u> </u> /ml	<u> </u>
			(number)	

INVALID CODES

- 1) Confluent Growth/No Coliform Found
- 2) TNTC/No Coliform Found
- 3) Turbid Culture/No Coliform Found
- 4) Over 30 Hours Old
- 5) Improper Sample or Analysis

() Repeat Samples Required

() Replacement Sample Required

Date Analysis Begun: 5/27/98

Time Analysis Begun: 7:15 P M

Date Analysis Completed: 5/28/98

Time Analysis Completed: 11:15 P M

Laboratory Log # 62798

Certified By: AB

COMMENTS: Rec'd 5:30 PM

Col 640AR

LAND OF BEGINNINGS

PRINTED ON RECYCLED PAPER



COUNTY OF DARE

KILL DEVIL HILLS, NORTH CAROLINA 27948

BACTERIOLOGICAL ANALYSIS

600 MUSTIAN ST.
PHONE (919) 441-7788

Laboratory ID#: 3 7 6 8 8

Water System ID#: Private Well

County: Dare

Name of System: Stumpy PT

Sample Type: (1=Routine; 2=Repeat; 3=Replacement; 4=Plan Approval; 5=Other/Non-compliance)

Collected on: DATE 0 5 12 7 1 9 8 (MM/DD/YY)

TIME: 2:10 P M (HH:MM AM or PM)

Location Where Collected: VERONICA END

Location Type: 5 (1=First User Tap; 2=General User Tap; 3=Last/End User Tap; 4=Source/Intake; 5=Other)

Location Code: 1 5 7

Collected By: CRM

FOR REPEAT SAMPLE:

Previous Positive Location Code:

Positive Collection Date: / /
Time: : :

Proximity: (1=Same; 2=Upstream;
3=Downstream)

FOR REPLACEMENT SAMPLE:

Original Sample Type: (1=Routine;
2=Repeat; 3=Plan Approval; 4=Other)

Original Collection Date: / /

Time: : : M

Mail Results To:

Dare County Health Department

PO Box 1000

Manteo, NC 27954

Telephone No. (919) 473-1101 or 441-2143

Type of Supply:

- Community NTNC
- Non-Community Adjacent
- Private Campground

Type of Treatment:

- Chlorinated
- Non-Chlorinated
- Free Chlorine Residual:
- Combined Chlorine Residual:

CONTAMINANT	METHOD	RESULT		
		PRESENT	ABSENT	INVALID
Total Coliform	<u>312</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Fecal/E. Coli	<u>316</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Heterotrophic P.C.	<u> </u>	<u> </u>	<u> </u> /ml	<u> </u>

(number)

INVALID CODES

- 1) Confluent Growth/No Coliform Found
- 2) TNTC/No Coliform Found
- 3) Turbid Culture/No Coliform Found
- 4) Over 30 Hours Old
- 5) Improper Sample or Analysis

() Repeat Samples Required

() Replacement Sample Required

Date Analysis Begun: 0 5 12 7 1 9 8

Time Analysis Begun: 7:20 P M

Date Analysis Completed: 5 1 20 1 9 8

Time Analysis Completed: 11:20 P M

Laboratory Log # E 27 98 8

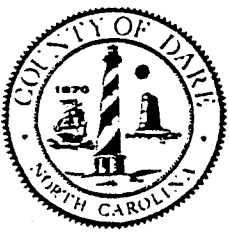
Certified By:

COMMENTS: Rec'd 5:30 PM

Col # 640 AR

LAND OF BEGINNINGS

PRINTED ON RECYCLED PAPER



COUNTY OF DARE

KILL DEVIL HILLS, NORTH CAROLINA 27948

BACTERIOLOGICAL ANALYSIS

600 MUSTIAN ST.
PHONE (919) 441-7788

Laboratory ID#: 3 7 6 8 8

Water System ID#: Private Well

County: Dare

Name of System: Stumpy PT

Sample Type: (1=Routine; 2=Repeat; 3=Replacement; 4=Plan Approval; 5=Other/Non-compliance)

Collected on: DATE 0 5 12 7 19 8 (MM/DD/YY)

TIME: 2:35 PM (HH:MM AM or PM)

Location Where Collected: GATHER GRAY

Location Type: 5 (1=First User Tap; 2=General User Tap; 3=Last/End User Tap; 4=Source/Intake; 5=Other)

Location Code: 1 4 6

Collected By: CRM

FOR REPEAT SAMPLE:

FOR REPLACEMENT SAMPLE:

Previous Positive Location Code:

Original Sample Type: (1=Routine; 2=Repeat; 3=Plan Approval; 4=Other)

Positive Collection Date: / /
Time: : :

Original Collection Date: / /

Proximity: (1=Same; 2=Upstream; 3=Downstream)

Time: : : M

Mail Results To:

Dare County Health Department
PO Box 1000
Manteo, NC 27954
Telephone No. (919) 473-1101 or 441-2143

Type of Supply:

Community NTNC
 Non-Community Adjacent
 Private Campground

Type of Treatment:

Chlorinated
 Non-Chlorinated
Free Chlorine Residual:
Combined Chlorine Residual:

CONTAMINANT	METHOD	RESULT		
		PRESENT	ABSENT	INVALID
Total Coliform	<u>3 1 2</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Fecal/E. Coli	<u>3 1 6</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Heterotrophic P.C.	<u> </u>	<u> </u>	<u> </u> /ml	<u> </u>
			(number)	

INVALID CODES

- 1) Confluent Growth/No Coliform Found
- 2) TNTC/No Coliform Found
- 3) Turbid Culture/No Coliform Found
- 4) Over 30 Hours Old
- 5) Improper Sample or Analysis

() Repeat Samples Required

() Replacement Sample Required

Date Analysis Begun: 5 12 7 19 8

Time Analysis Begun: 7:25 PM

Date Analysis Completed: 5 12 8 19 8

Time Analysis Completed: 11:25 PM

Laboratory Log # 5-2798T

Certified By: SB

COMMENTS: POC @ 5:30 PM

Col # 640 AR

LAND OF BEGINNINGS

PRINTED ON RECYCLED PAPER



COUNTY OF DARE

KILL DEVIL HILLS, NORTH CAROLINA 27948

BACTERIOLOGICAL ANALYSIS

600 MUSTIAN ST.
PHONE (919) 441-7788

Laboratory ID#: 3 7 6 8 8

Water System ID#: Private Well

County: Dare

Name of System: Stampy PT

Sample Type: ___ (1=Routine; 2=Repeat; 3=Replacement; 4=Plan Approval; 5=Other/Non-compliance)

Collected on: DATE 0 5 1 2 7 1 9 8 (MM/DD/YY)

TIME: 2: 4 5 P M (HH:MM AM or PM)

Location Where Collected: Henry Christner

Location Type: 5 (1=First User Tap; 2=General User Tap; 3=Last/End User Tap; 4=Source/Intake; 5=Other)

Location Code: 1 4 3

Collected By: CRM

FOR REPEAT SAMPLE:

Previous Positive Location Code: _____

Positive Collection Date: / /
Time: :

Proximity: ___ (1 =Same; 2=Upstream;
3=Downstream)

FOR REPLACEMENT SAMPLE:

Original Sample Type: ___ (1=Routine;
2=Repeat; 3=Plan Approval; 4=Other)

Original Collection Date: / /

Time: : M

Mail Results To:

Dare County Health Department

PO Box 1000

Manteo, NC 27954

Telephone No. (919) 473-1101 or 441-2143

Type of Supply :

- Community NTNC
 Non-Community Adjacent
 Private Campground

Type of Treatment:

- Chlorinated
 Non-Chlorinated
Free Chlorine Residual: _____
Combined Chlorine Residual: _____

CONTAMINANT	METHOD	RESULT		
		PRESENT	ABSENT	INVALID
Total Coliform	<u>3 1 2</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Feca/E. Coli	<u>3 1 6</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Heterotrophic P.C.	_____	_____	_____	_____

/ml
(number)

INVALID CODES

- 1) Confluent Growth/No Coliform Found
- 2) TNTC/No Coliform Found
- 3) Turbid Culture/No Coliform Found
- 4) Over 30 Hours Old
- 5) Improper Sample or Analysis

() Repeat Samples Required

() Replacement Sample Required

Date Analysis Begun: 0 5 1 2 7 1 9 8

Time Analysis Begun: 7: 3 0 P M

Date Analysis Completed: 5 1 2 8 1 9 8

Time Analysis Completed: 1 1: 3 0 P M

Laboratory Log # E 2 7 9 8 U

Certified By: AM

COMMENTS: See @ 5:30 PM

Col # 640 AR

LAND OF BEGINNINGS

PRINTED ON RECYCLED PAPER



COUNTY OF DARE

KILL DEVIL HILLS, NORTH CAROLINA 27948

BACTERIOLOGICAL ANALYSIS

600 MUSTIAN ST.
PHONE (919) 441-7788

Laboratory ID#: 3 7 6 8 8

Water System ID#: Private Well

County: Dare

Name of System: Stumpy Point

Sample Type: ___ (1=Routine; 2=Repeat; 3=Replacement; 4=Plan Approval; 5=Other/Non-compliance)

Collected on: DATE 0 5 12 7 19 8 (MM/DD/YY)

TIME: 3:00 P M (HH:MM AM or PM)

Location Where Collected: Russell Nixon / Johnny Midgett

Location Type: 5 (1=First User Tap; 2=General User Tap; 3=Last/End User Tap; 4=Source/Intake; 5=Other)

Location Code: 1 3 6

Collected By: CRM

FOR REPEAT SAMPLE:

FOR REPLACEMENT SAMPLE:

Previous Positive Location Code: _____

Original Sample Type: ___ (1=Routine; 2=Repeat; 3=Plan Approval; 4=Other)

Positive Collection Date: / /
Time: :

Original Collection Date: / /

Proximity: ___ (1=Same; 2=Upstream; 3=Downstream)

Time: : M

Mail Results To:

Type of Supply :

Dare County Health Department
PO Box 1000
Manteo, NC 27954
Telephone No. (919) 473-1101 or 441-2143

Community NTNC
 Non-Community Adjacent
 Private Campground

Type of Treatment:

Chlorinated
 Non-Chlorinated
Free Chlorine Residual: _____
Combined Chlorine Residual: _____

CONTAMINANT	METHOD	RESULT		
		PRESENT	ABSENT	INVALID
Total Coliform	<u>312</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fecal/E. Coli	<u>316</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Heterotrophic P.C.	_____	_____	_____ /ml	_____ (number)

INVALID CODES

- 1) Confluent Growth/No Coliform Found
- 2) TNIC/No Coliform Found
- 3) Turbid Culture/No Coliform Found
- 4) Over 30 Hours Old
- 5) Improper Sample or Analysis

() Repeat Samples Required

() Replacement Sample Required

Date Analysis Begun: 0 5 12 7 19 8

Time Analysis Begun: 7:35 P M

Date Analysis Completed: 5 12 8 1 9 8

Time Analysis Completed: 11:35 P M

Laboratory Log # E 2798 V

Certified By: [Signature]

COMMENTS: Ret E 5:30pm
Col # 640 AR

LAND OF BEGINNINGS

PRINTED ON RECYCLED PAPER



COUNTY OF DARE

KILL DEVIL HILLS, NORTH CAROLINA 27948

BACTERIOLOGICAL ANALYSIS

600 MUSTIAN ST.
PHONE (919) 441-7788

Laboratory ID#: 3 7 6 8 8

Water System ID#: Private Well

County: Dare

Name of System: Stumpy PT

Sample Type: (1=Routine; 2=Repeat; 3=Replacement; 4=Plan Approval; 5=Other/Non-compliance)

Collected on: DATE 0 5 1 2 7 1 9 8 (MM/DD/YY) TIME: : : M (HH:MM AM or PM)

Location Where Collected: Melba Hooper

Location Type: 5 (1=First User Tap; 2=General User Tap; 3=Last/End User Tap; 4=Source/Intake; 5=Other)

Location Code: 1 3 3

Collected By: CRM

FOR REPEAT SAMPLE:

FOR REPLACEMENT SAMPLE:

Previous Positive Location Code:

Original Sample Type: (1=Routine;
2=Repeat; 3=Plan Approval; 4=Other)

Positive Collection Date: / /
Time: : :

Original Collection Date: / /

Proximity: (1=Same; 2=Upstream;
3=Downstream)

Time: : : M

Mail Results To:

Type of Supply :

Dare County Health Department

- Community NTNC
 Non-Community Adjacent
 Private Campground

PO Box 1000

Manteo, NC 27954

Type of Treatment:

- Chlorinated
 Non-Chlorinated
Free Chlorine Residual:
Combined Chlorine Residual:

Telephone No. (919) 473-1101 or 441-2143

CONTAMINANT	METHOD	RESULT		
		PRESENT	ABSENT	INVALID
Total Coliform	<u>312</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fecal/E. Coli	<u>316</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Heterotrophic P.C.	<u> </u>	<u> </u>	<u> </u>	<u> </u>

(number)

INVALID CODES

- 1) Confluent Growth/No Coliform Found
- 2) TNTC/No Coliform Found
- 3) Turbid Culture/No Coliform Found
- 4) Over 30 Hours Old
- 5) Improper Sample or Analysis

() Repeat Samples Required

() Replacement Sample Required

Date Analysis Begun: 0 5 1 2 7 1 9 8

Time Analysis Begun: 2:40 PM

Date Analysis Completed: 5 1 2 8 1 9 8

Time Analysis Completed: 11:40 PM

Laboratory Log # E 2798 W

Certified By: BT

COMMENTS: Rec'd 5:30pm

10/26/02

LAND OF BEGINNINGS

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COUNTY OF DARE

KILL DEVIL HILLS, NORTH CAROLINA 27948

BACTERIOLOGICAL ANALYSIS

600 MUSTIAN ST.
PHONE (919) 441-7788

Laboratory ID#: 3 7 6 8 8

Water System ID#: Private Well

County: Dare

Name of System: Stumpy Point

Sample Type: (1=Routine; 2=Repeat; 3=Replacement; 4=Plan Approval; 5=Other/Non-compliance)

Collected on: DATE 0 5 12 7 1 9 8 (MM/DD/YY)

TIME: 3:30 P (HH:MM AM or PM)

Location Where Collected: Oliver Payne

Location Type: 5 (1=First User Tap; 2=General User Tap; 3=Last/End User Tap; 4=Source/Intake; 5=Other)

Location Code: 1 2 2

Collected By: CRM

FOR REPEAT SAMPLE:

Previous Positive Location Code:

Positive Collection Date: / /
Time: : :

Proximity: (1=Same; 2=Upstream;
3=Downstream)

FOR REPLACEMENT SAMPLE:

Original Sample Type: (1=Routine;
2=Repeat; 3=Plan Approval; 4=Other)

Original Collection Date: / /
Time: : : M

Mail Results To:

Dare County Health Department

PO Box 1000

Manteo, NC 27954

Telephone No. (919) 473-1101 or 441-2143

Type of Supply :

- Community NTNC
 Non-Community Adjacent
 Private Campground

Type of Treatment:

- Chlorinated
 Non-Chlorinated

Free Chlorine Residual:

Combined Chlorine Residual:

CONTAMINANT	METHOD	RESULT		
		PRESENT	ABSENT	INVALID
Total Coliform	<u>3 1 2</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fecal/E. Coli	<u>3 1 6</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Heterotrophic P.C.	<u> </u>	<u> </u>	<u> </u>	<u> </u> /ml (number)

INVALID CODES

- 1) Confluent Growth/No Coliform Found
- 2) TNTC/No Coliform Found
- 3) Turbid Culture/No Coliform Found
- 4) Over 30 Hours Old
- 5) Improper Sample or Analysis

() Repeat Samples Required

() Replacement Sample Required

Date Analysis Begun: 0 5 12 7 1 9 8

Time Analysis Begun: 8:20 P M

Date Analysis Completed: 5 12 7 1 9 8

Time Analysis Completed: 12:20 P M

Laboratory Log # E 27 98 AE

Certified By:

REMARKS: Rec @ 3:30 pm

P. 1 # 640 AR

LAND OF BEGINNINGS

PRINTED ON RECYCLED PAPER



COUNTY OF DARE
KILL DEVIL HILLS, NORTH CAROLINA 27948

600 MUSTIAN ST.
PHONE (919) 441-7788

BACTERIOLOGICAL ANALYSIS

Laboratory ID#: 3 7 6 8 8
 Water System ID#: Private Well County: Dare
 Name of System: Stumpy Pt
 Sample Type: (1=Routine; 2=Repeat; 3=Replacement; 4=Plan Approval; 5=Other/Non-compliance)
 Collected on: DATE 0 5 12 7 19 8 (MM/DD/YY) TIME: 3:40 P M (HH:MM AM or PM)
 Location Where Collected: Hubert Basnight
 Location Type: 5 (1=First User Tap; 2=General User Tap; 3=Last/End User Tap; 4=Source/Intake; 5=Other)
 Location Code: 114 Collected By: CRM

FOR REPEAT SAMPLE:

Previous Positive Location Code:
 Positive Collection Date: / /
 Time: :
 Proximity: (1=Same; 2=Upstream; 3=Downstream)

FOR REPLACEMENT SAMPLE:

Original Sample Type: (1=Routine; 2=Repeat; 3=Plan Approval; 4=Other)
 Original Collection Date: / /
 Time: : M

Mail Results To:

Dare County Health Department
PO Box 1000
Manteo, NC 27954
 Telephone No. (919) 473-1101 or 441-2143

Type of Supply : Community NTNC
 Non-Community Adjacent
 Private Campground

Type of Treatment: Chlorinated
 Non-Chlorinated
 Free Chlorine Residual:
 Combined Chlorine Residual:

CONTAMINANT	METHOD	PRESENT	RESULT		INVALID
			ABSENT	INVALID	
Total Coliform	<u>312</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Fecal/E. Coli	<u>314</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Heterotrophic P.C.	<u> </u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

/ml
(number)

INVALID CODES

- 1) Confluent Growth/No Coliform Found
- 2) TNTC/No Coliform Found
- 3) Turbid Culture/No Coliform Found
- 4) Over 30 Hours Old
- 5) Improper Sample or Analysis

() Repeat Samples Required

Date Analysis Begun: 0 5 12 7 19 8
 Date Analysis Completed: 5 1 28 19 8
 Laboratory Log # E 2798 X

() Replacement Sample Required
 Time Analysis Begun: 7:45 P M
 Time Analysis Completed: 11:45 P M
 Certified By: RM

COMMENTS:

Rec @ 5:30 P.M.
Col # 640 AR.

LAND OF BEGINNINGS

PRINTED ON RECYCLED PAPER



COUNTY OF DARE

KILL DEVIL HILLS, NORTH CAROLINA 27948

600 MUSTIAN ST.
PHONE (919) 441-7788

BACTERIOLOGICAL ANALYSIS

Laboratory ID#: 37688
 Water System ID#: Private Well County: Dare
 Name of System: Stumpy Point
 Sample Type: (1=Routine; 2=Repeat; 3=Replacement; 4=Plan Approval; 5=Other/Non-compliance)
 Collected on: DATE 05127198 (MM/DD/YY) TIME: 3:55 PM (HH:MM AM or PM)
 Location Where Collected: Joe Payne (First Street)
 Location Type: 5 (1=First User Tap; 2=General User Tap; 3=Last/End User Tap; 4=Source/Intake; 5=Other)
 Location Code: 110 Collected By: CRM

FOR REPEAT SAMPLE:

Previous Positive Location Code:
 Positive Collection Date: / /
 Time: : :
 Proximity: (1=Same; 2=Upstream; 3=Downstream)

FOR REPLACEMENT SAMPLE:

Original Sample Type: (1=Routine; 2=Repeat; 3=Plan Approval; 4=Other)
 Original Collection Date: / /
 Time: : : M

Mail Results To:

Dare County Health Department
PO Box 1000
Manteo, NC 27954
 Telephone No. (919) 473-1101 or 441-2143

Type of Supply: Community NTNC
 Non-Community Adjacent
 Private Campground

Type of Treatment: Chlorinated
 Non-Chlorinated
 Free Chlorine Residual:
 Combined Chlorine Residual:

CONTAMINANT	METHOD	RESULT		
		PRESENT	ABSENT	INVALID
Total Coliform	<u>312</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fecal/E. Coli	<u>316</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Heterotrophic P.C.	<u> </u>	<u> </u>	<u> </u>	<u> </u>

/ml
(number)

INVALID CODES

- 1) Confluent Growth/No Coliform Found
- 2) TNTC/No Coliform Found
- 3) Turbid Culture/No Coliform Found
- 4) Over 30 Hours Old
- 5) Improper Sample or Analysis

() Replacement Sample Required

() Repeat Samples Required

Date Analysis Begun: 05127198
 Date Analysis Completed: 5128198
 Laboratory Log # E3788Y

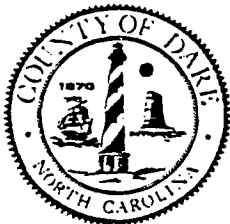
Time Analysis Begun: 7:50 PM
 Time Analysis Completed: 11:50 PM
 Certified By: AD

COMMENTS:

REC'D 5:30 PM
Cal # 1640 AR

LAND OF BEGINNINGS

PRINTED ON RECYCLED PAPER



COUNTY OF DARE

KILL DEVIL HILLS, NORTH CAROLINA 27948

BACTERIOLOGICAL ANALYSIS

600 MUSTIAN ST.
PHONE (919) 441-7788

Laboratory ID#: 3 7 6 8 8

Water System ID#: Private Well

County: Dare

Name of System: Stumpy Point

Sample Type: (1=Routine; 2=Repeat; 3=Replacement; 4=Plan Approval; 5=Other/Non-compliance)

Collected on: DATE 0 5 1 2 7 1 9 8 (MM/DD/YY) TIME: 4 : 1 5 P M (HH:MM AM or PM)

Location Where Collected: Trenton Payne SR

Location Type: 5 (1=First User Tap; 2=General User Tap; 3=Last/End User Tap; 4=Source/Intake; 5=Other)

Location Code: 1 0 6

Collected By: CRM

FOR REPEAT SAMPLE:

FOR REPLACEMENT SAMPLE:

Previous Positive Location Code:

Original Sample Type: (1=Routine;
2=Repeat; 3=Plan Approval; 4=Other)

Positive Collection Date: / /
Time: : :

Original Collection Date: / /

Proximity: (1=Same; 2=Upstream;
3=Downstream)

Time: : : M

Mail Results To:

Dare County Health Department
PO Box 1000
Manteo, NC 27954
Telephone No. (919) 473-1101 or 441-2143

Type of Supply: Community NTNC
 Non-Community Adjacent
 Private Campground

Type of Treatment: Chlorinated
 Non-Chlorinated
Free Chlorine Residual:
Combined Chlorine Residual:

CONTAMINANT	METHOD	RESULT		
		PRESENT	ABSENT	INVALID
Total Coliform	<u>3 1 2</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Fecal/E. Coli	<u>3 1 6</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Heterotrophic P.C.	<u> </u>	<u> </u>	<u> </u>	<u> </u> /ml

(number)

- ### INVALID CODES
- 1) Confluent Growth/No Coliform Found
 - 2) TNTC/No Coliform Found
 - 3) Turbid Culture/No Coliform Found
 - 4) Over 30 Hours Old
 - 5) Improper Sample or Analysis

() Repeat Samples Required

() Replacement Sample Required

Date Analysis Begun: 0 5 1 2 7 1 9 8

Time Analysis Begun: 7 : 5 5 P M

Date Analysis Completed: 5 1 2 8 1 9 8

Time Analysis Completed: 1 1 : 5 5 P M

Laboratory Log # E 2 7 9 8 2

Certified By: AS

COMMENTS: Rec @ 5:30 pm

Col # 640 AR

LAND OF BEGINNINGS

PRINTED ON RECYCLED PAPER



COUNTY OF DARE

KILL DEVIL HILLS, NORTH CAROLINA 27948

BACTERIOLOGICAL ANALYSIS

600 MUSTIAN ST.
PHONE (919) 441-7788

Laboratory ID#: 37688

Water System ID#: Private Well

County: Dare

Name of System: Stumpy PT

Sample Type: ___ (1=Routine; 2=Repeat; 3=Replacement; 4=Plan Approval; 5=Other/Non-compliance)

Collected on: DATE 0512798 (MM/DD/YY)

TIME: 4:25 PM (HH:MM AM or PM)

Location Where Collected: EARL RAY MIDGETT SR. (FIRST STREET)

Location Type: 5 (1=First User Tap; 2=General User Tap; 3=Last/End User Tap; 4=Source/Intake; 5=Other)

Location Code: 100

Collected By: CRM

FOR REPEAT SAMPLE:

Previous Positive Location Code: _____

Positive Collection Date: / /
Time: :

Proximity: ___ (1=Same; 2=Upstream;
3=Downstream)

FOR REPLACEMENT SAMPLE:

Original Sample Type: ___ (1=Routine;
2=Repeat; 3=Plan Approval; 4=Other)

Original Collection Date: / /

Time: : M

Mail Results To:

Dare County Health Department

PO Box 1000

Manteo, NC 27954

Telephone No. (919) 473-1101 or 441-2143

Type of Supply:

- Community NTNC
 Non-Community Adjacent
 Private Campground

Type of Treatment:

- Chlorinated
 Non-Chlorinated

Free Chlorine Residual: _____

Combined Chlorine Residual: _____

CONTAMINANT	METHOD	RESULT		
		PRESENT	ABSENT	INVALID
Total Coliform	<u>312</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fecal/E. Coli	<u>316</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Heterotrophic P.C.	_____	_____	_____	_____

(number)

INVALID CODES

- 1) Confluent Growth/No Coliform Found
- 2) TNTC/No Coliform Found
- 3) Turbid Culture/No Coliform Found
- 4) Over 30 Hours Old
- 5) Improper Sample or Analysis

() Repeat Samples Required

() Replacement Sample Required

Date Analysis Begun: 0512798

Time Analysis Begun: 8:00 PM

Date Analysis Completed: 05129198

Time Analysis Completed: 12:00 PM

Laboratory Log # E2798 AA

Certified By: BT

COMMENTS: Rec'd 5:30 pm

Col # 640 AR

LAND OF BEGINNINGS

PRINTED ON RECYCLED PAPER



COUNTY OF DARE

KILL DEVIL HILLS, NORTH CAROLINA 27948

BACTERIOLOGICAL ANALYSIS

600 MUSTIAN ST.
PHONE (919) 441-7788

Laboratory ID#: 3 7 6 8 8

Water System ID#: Private Well

County: Dare

Name of System: Stumpy PT

Sample Type: (1=Routine; 2=Repeat; 3=Replacement; 4=Plan Approval; 5=Other/Non-compliance)

Collected on: DATE 0 5 12 7 19 8 (MM/DD/YY)

TIME: 4: 35 P M (HH:MM AM or PM)

Location Where Collected: Bennie Payne

Location Type: 5 (1=First User Tap; 2=General User Tap; 3=Last/End User Tap; 4=Source/Intake; 5=Other)

Location Code: 1 0 2

Collected By: CRM

FOR REPEAT SAMPLE:

Previous Positive Location Code:

Positive Collection Date: / /
Time: : :

Proximity: (1=Same; 2=Upstream;
3=Downstream)

FOR REPLACEMENT SAMPLE:

Original Sample Type: (1=Routine;
2=Repeat; 3=Plan Approval; 4=Other)

Original Collection Date: / /

Time: : : M

Mail Results To:

Dare County Health Department

PO Box 1000

Manteo, NC 27954

Telephone No. (919) 473-1101 or 441-2143

Type of Supply :

- Community NTNC
- Non-Community Adjacent
- Private Campground

Type of Treatment:

- Chlorinated
- Non-Chlorinated
- Free Chlorine Residual:
- Combined Chlorine Residual:

CONTAMINANT	METHOD	RESULT		
		PRESENT	ABSENT	INVALID
Total Coliform	<u>312</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Fecal/E. Coli	<u>316</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Heterotrophic P.C.	<u> </u>	<u> </u>	<u> </u> /ml	<u> </u>

(number)

INVALID CODES

- 1) Confluent Growth/No Coliform Found
- 2) TNTC/No Coliform Found
- 3) Turbid Culture/No Coliform Found
- 4) Over 30 Hours Old
- 5) Improper Sample or Analysis

() Repeat Samples Required

() Replacement Sample Required

Date Analysis Begun: 0 5 12 7 19 8

Time Analysis Begun: 8: 05 P M

Date Analysis Completed: 0 5 12 7 19 8

Time Analysis Completed: 12: 05 A M

Laboratory Log # F 2798 AB

Certified By:

COMMENTS: Rec at 5:30 PM

Col # 640 AR

LAND OF BEGINNINGS

PRINTED ON RECYCLED PAPER



COUNTY OF DARE

KILL DEVIL HILLS, NORTH CAROLINA 27948

600 MUSTIAN ST.
PHONE (919) 441-7788

Dare County Residential Well Water Sample Analysis

Parameter		State Max / Min
Total Hardness (mg/l as CaCO ₃)	152	150
Iron (mg/l as Fe)	.127	0.3
Chloride (mg/l as CL)	15	250
Fluoride (mg/l as F)	1.32	4.0
Color	38	15
pH	7.9	6.5 - 8.5
Turbidity, NTU	0.06	1.0
Total Dissolved Solids (mg/l)	320	500
Free Chlorine Residual (mg/l)	----	not less than 0.2
Total Chlorine Residual (mg/l)	----	N/A
Bacteriological Results	Negative	

Name: **Milton Hooper**
Address: **270 Bayview**
Stumpy Point, NC (#1)

Phone Number:

Date Sample Taken: 10-7-97

Sample Drawn Location: Kitchen

Date Analysis Completed: 10-7-97

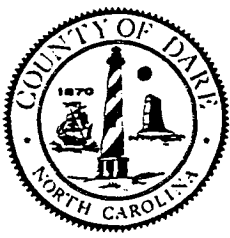
Operator: Les Austin (B.M.)

Date Bacteriological Completed: 10-8-97

Operator: Chris Payne

LAND OF BEGINNINGS

PRINTED ON RECYCLED PAPER



COUNTY OF DARE
KILL DEVIL HILLS, NORTH CAROLINA 27948

600 MUSTIAN ST.
PHONE (919) 441-7788

**Dare County
Residential Well Water Sample Analysis**

Parameter		State Max / Min
Total Hardness (mg/l as CaCO ₃)	508	150
Iron (mg/l as Fe)	.992	0.3
Chloride (mg/l as CL)	80	250
Fluoride (mg/l as F)	.91	4.0
Color	128	15
pH	7.31	6.5 - 8.5
Turbidity, NTU	0.23	1.0
Total Dissolved Solids (mg/l)	640	500
Free Chlorine Residual (mg/l)	----	not less than 0.2
Total Chlorine Residual (mg/l)	----	N/A
Bacteriological Results	Positive (Fecal)	

Name: **Cheryl Hooper**
Address: **162 Bayview**
Stumpy Point (#2)

Phone Number:

Date Sample Taken: **10-7-97**

Sample Drawn Location: **Kitchen Sink**

Date Analysis Completed: **10-7-97**

Operator: **Les Austin (B.M.)**

Date Bacteriological Completed: **10-8-97**

Operator: **Lawrence Battaile**



COUNTY OF DARE

KILL DEVIL HILLS, NORTH CAROLINA 27948

600 MUSTIAN ST.
PHONE (919) 441-7788

Dare County Residential Well Water Sample Analysis

Parameter		State Max / Min
Total Hardness (mg/l as CaCO ₃)	204	150
Iron (mg/l as Fe)	.051	0.3
Chloride (mg/l as CL)	10	250
Fluoride (mg/l as F)	1.02	4.0
Color	42	15
pH	7.69	6.5 - 8.5
Turbidity, NTU	0.17	1.0
Total Dissolved Solids (mg/l)	280	500
Free Chlorine Residual (mg/l)	----	not less than 0.2
Total Chlorine Residual (mg/l)	----	N/A
Bacteriological Results	Negative	

Name: **Ralph O'Neal**
Address: **208 Bayview**
Stumpy Point (#3)

Phone Number:

Date Sample Taken: **10-7-97**

Sample Drawn Location: **Kitchen Sink**

Date Analysis Completed: **10-7-97**

Operator: **Les Austin**

Date Bacteriological Completed: **10-8-97**

Operator: **Chris Payne**

LAND OF BEGINNINGS

PRINTED ON RECYCLED PAPER



COUNTY OF DARE

KILL DEVIL HILLS, NORTH CAROLINA 27948

600 MUSTIAN ST.
PHONE (919) 441-7788

Dare County Residential Well Water Sample Analysis

Parameter		State Max / Min
Total Hardness (mg/l as CaCO ₃)	72	150
Iron (mg/l as Fe)	0.28	0.3
Chloride (mg/l as CL)	7	250
Fluoride (mg/l as F)	.67	4.0
Color	321	15
pH	8.22	6.5 - 8.5
Turbidity, NTU	.30	1.0
Total Dissolved Solids (mg/l)	833	500
Free Chlorine Residual (mg/l)	----	not less than 0.2
Total Chlorine Residual (mg/l)	----	N/A
Bacteriological Results	Negative	

Name: **Veronica End**
Address: **157 Bayview**
Stumpy Point

Phone Number: **473-5175**

Date Sample Taken: **3-3-98**

Sample Drawn Location: **Outside spigot**

Date Analysis Completed: **3-3-98**

Operator: **DE, TB**

Date Bacteriological Completed: **3-4-98**

Operator: **BC**

NOTE: Bacteriological analysis results from discharge of RO unit - Negative

LAND OF BEGINNINGS

PRINTED ON RECYCLED PAPER



COUNTY OF DARE

KILL DEVIL HILLS, NORTH CAROLINA 27948

600 MUSTIAN ST.
PHONE (919) 441-7788

Dare County Residential Well Water Sample Analysis

Parameter		State Max / Min
Total Hardness (mg/l as CaCO ₃)	120	150
Iron (mg/l as Fe)	.12	0.3
Chloride (mg/l as CL)	17	250
Fluoride (mg/l as F)	.71	4.0
Color	32	15
pH	8.02	6.5 - 8.5
Turbidity, NTU	.25	1.0
Total Dissolved Solids (mg/l)	296	500
Free Chlorine Residual (mg/l)	----	not less than 0.2
Total Chlorine Residual (mg/l)	----	N/A
Bacteriological Results	Negative	

Name: **Veronica End (#2)**
Address: **275 Bayview**
Stumpy Point

Phone Number:

Date Sample Taken: **3-3-98**

Sample Drawn Location: **Pump House Spigot**

Date Analysis Completed: **3-3-98**

Operator: **DE, TB**

Date Bacteriological Completed: **3-4-98**

Operator: **BC**

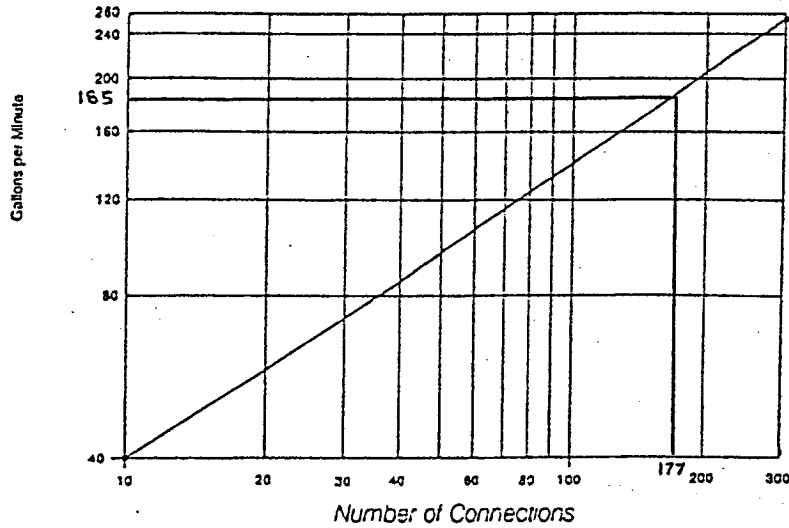
LAND OF BEGINNINGS

PRINTED ON RECYCLED PAPER

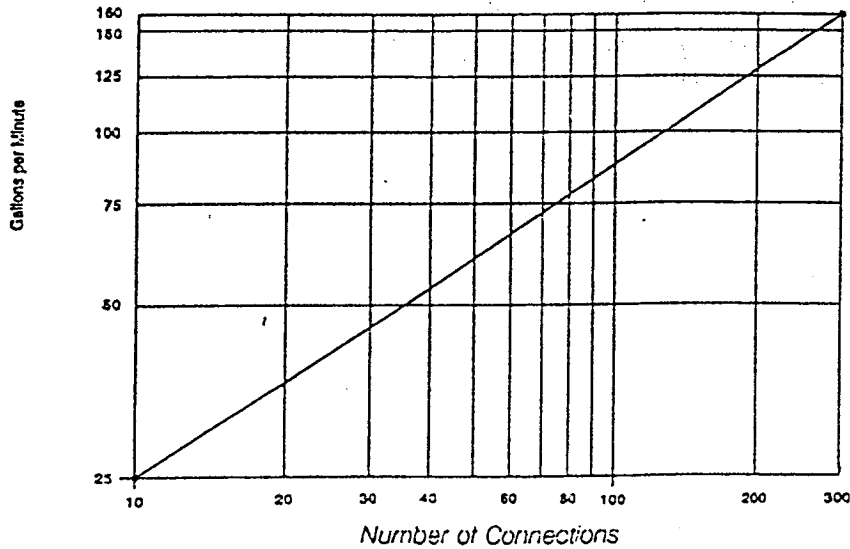
APPENDIX C

**PEAK DEMAND FOR RESIDENTIAL
COMMUNITY WATER SYSTEMS**

PEAK DEMAND FOR RESIDENTIAL COMMUNITY WATER SYSTEMS
(Number of Connections vs Gallons per Minute)



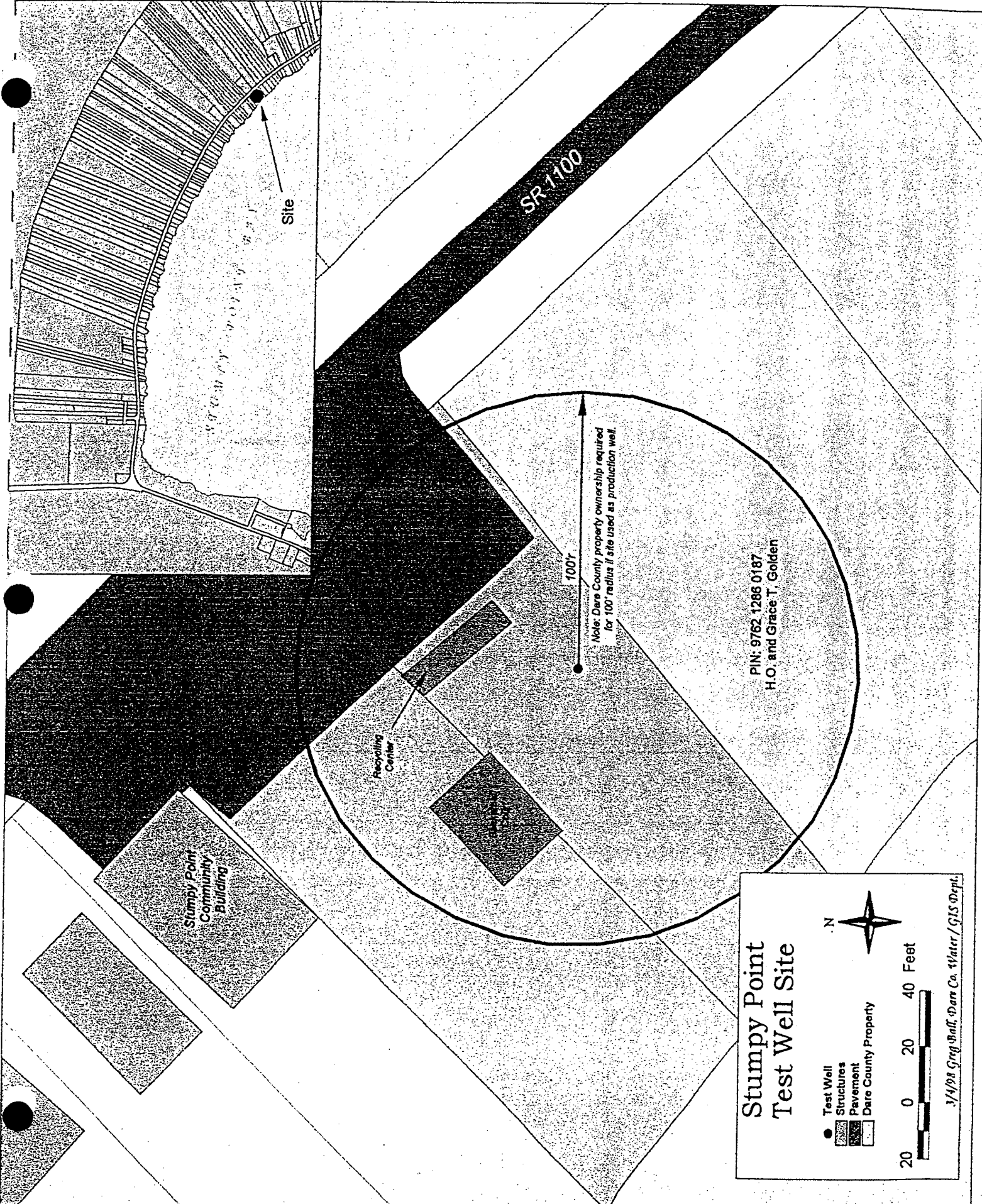
PEAK DEMAND FOR MOBILE HOME PARK WATER SYSTEMS
(Number of Connections vs Gallons per Minute)



(b) The peak demand for non-transient, non-community water systems shall be determined based on the total demand weight of fixtures in accordance with the procedures of the North Carolina State Building Code, Volume II, Plumbing Section which are hereby incorporated by reference including any subsequent amendments and editions. This material is available for inspection at the Department of Environment, Health, and Natural Resources, Division of Environmental Health, 1330 Saint Mary's Street, Raleigh, North Carolina. Copies may be obtained from the North Carolina Department of

APPENDIX D

**DARE COUNTY OWNED PROPERTY IN
THE STUMPY POINT COMMUNITY**



Stumpy Point Test Well Site

- Test Well
- Structures
- Pavement
- Dare County Property

N

20 0 20 40 Feet

3/4/08 Greg Ball, Dare Co. Water / GIS Dept.

Site

SR-1100

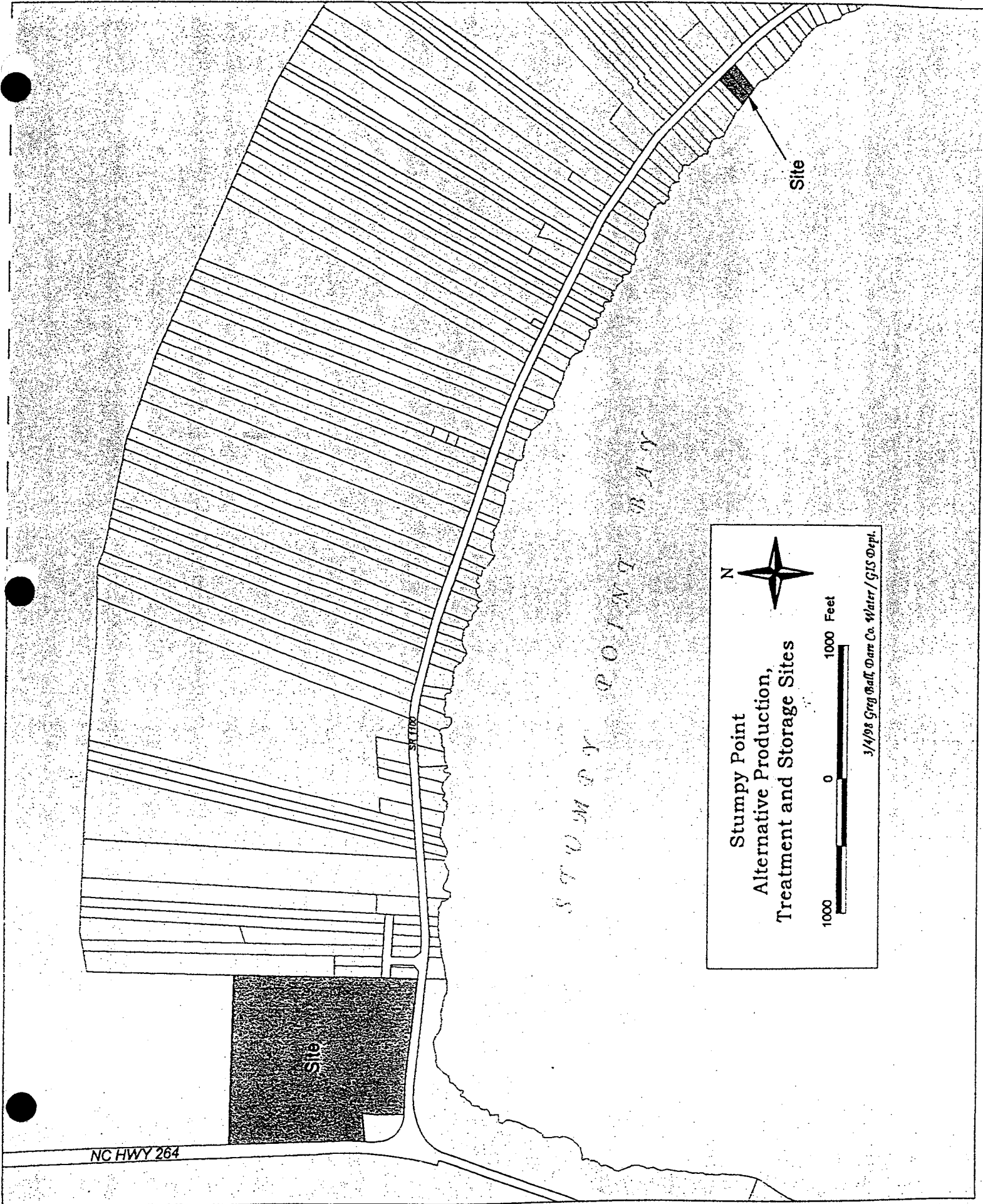
100'

Note: Dare County property ownership required for 100' radius if site used as production well.

Recycling Center

Stumpy Point
Community
Building

PIN: 9762 1286 0187
H.O. and Grace T. Golden



Site

Site

NC HWY 264

SALING

STUMPY POINT BAY

**Stumpy Point
Alternative Production,
Treatment and Storage Sites**

1000 0 1000 Feet

3/4/98 Greg Raff, Dare Co. Water/GIS Dept.



Soil Types at the
Intersection of NC HWY 264
and SR 1100



3/4/98 Greg Ball, Dare Co. Water / GIS Dept.

BVA

NC HWY 264

HYA

PSB

SR 1100

APPENDIX E

TEST WELL DATA

November 24, 1997

Mr. Eric Weatherly
Project Engineer
Hobbs, Upchurch & Assc.
2009 Croaten Hwy
Kill Devil Hills, NC 27948

Dear Eric:

Re: Pilot Test Well Proposal

In response to our conversation, we offer the following proposal to drill a pilot hole/test well in an attempt to determine the potential for a production well at your proposed location. We understand you want the test well to be capable of acquiring data for both estimating capacity and for determining water quality from multiple zones. At this time, we do not know how many zones will be encountered during the test drilling, therefore the proposal will be expandable to perform additional testing as required. Our approach to the project is as follows:

1. Mobilize drill rig to test well site.
2. Drill 8" bore hole to between 300 and 400 feet. We will use existing USGS data to determine the target depth prior to starting the project. We will take formation samples every ten feet to prepare a driller's log of the formation.
3. The open bore hole will be geophysically logged. We will run Gamma, SP and Resistivity logs.
4. Following the logging, we will meet with you to determine which zones should be tested for water quality.
5. A four inch test well will be constructed in the deepest zone. The test well will consist of ten feet of steel, wire wrap screen and four inch steel casing. Following the installation of the screen and casing, the screen will be gravel packed and a Bentonite seal placed above the gravel pack. A small pump capable of providing between 10 and 15 gallons per minute will be installed and a ground water sample taken from the well.
6. The next target formation will be sampled by pulling the casing and screen back to the target depth and repeating the procedures outlined in step 5. Following the testing of the shallowest formation, we will complete the test well by grouting the steel casing in place.
7. A report with our findings will be prepared and submitted to you.

The cost for performing work as outlined above is as follows:

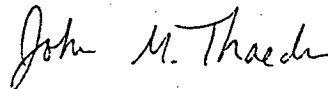
- | | |
|-----------------------------------------------------------------------------------|--------|
| 1. Mobilization from our current Buxton, NC project | \$750 |
| 2. Pilot hole to 350 feet, taking samples every 10 feet
(350 feet @ \$12/foot) | \$4200 |
| 3. Geophysical Logging | \$600 |
| 4. Initial Test Well Setting and Sampling | \$2500 |
| 5. Additional test well settings | \$2200 |
| 6. (1 @ \$2200) | |

In preparing our proposal, we have made the following assumptions:

- Water will be available within 200 feet of test well site.
- The site will be accessible to our truck mounted equipment.
- If a back hoe is required, it will be supplied by Dare County.
- Sample bottles and sample testing will be supplied and performed by others.
- If we cannot mobilize from our existing project, the additional mobilization costs is \$800. We anticipate being ready to move from the Buxton project by December 8th.
- We have not included any site work
- We assume development water and drilling water can be disposed of on site or will be disposed of by others.

After you have reviewed the above, I will be pleased to meet with you to discuss the project. Thanks again for your interest and we look forward to working with you.

Very truly yours,
HYDRO GROUP, INC.



John M. Thaeber
Southeastern District Manager



Hydro Group, Inc.
11287 Central Drive, Suite A, Ashland, VA 23005
(804) 798-1199 Fax (804) 798-1267

February 2, 1998

Mr. Eric Weatherly, Project Engineer
Hobbs, Upchurch & Associates, PA
20009 Croatan Highway
Kill Devil Hills, NC 27948

RE: STUMPY POINT, NC
PILOT TEST WELL
HUA# DR9706

Dear Mr. Weatherly,

Enclosed please find the electric and gamma logs, the drillers report and our invoice for the test well at above referenced project.

There were two zones which have the potential to provide a significant amount of water. The first zone, which is approximately 160-180 feet, logged fairly well, however, the material was fine in nature. The upper zone produced a higher quantity of water during our short pumping cycle. The second zone which went from 260-300 feet was much coarser, however, the gamma logs indicates that there is a significant amount of clay in the formation.

Once you have received the results of the water analysis we should meet to discuss the best alternative.

We look forward to working with you on this project.

Sincerely,

John M. Thader
Southeastern District Manager

JMT:jw

enclosures: (2) geophysical logs
(1) drillers report
(1) invoice



ASHLAND, VA (804)798-1199

DRILLERS REPORT

JOB No. 702218 DRILLER Robert Taylor CUSTOMER WELL No. # 1
 CUSTOMER DARE COUNTY LAYNE WELL No.
 WELL LOCATION Stumpy Point Firehouse STATE PERMIT No.
 FORMATION SKETCH OF SETTING REMARKS

0-20' - Shell/Sand
 Green/Black
 Sandy Clay

20-45' - Sandy clay
 mix with shell
 & coarse sand

45-160' - shell & clay 97'

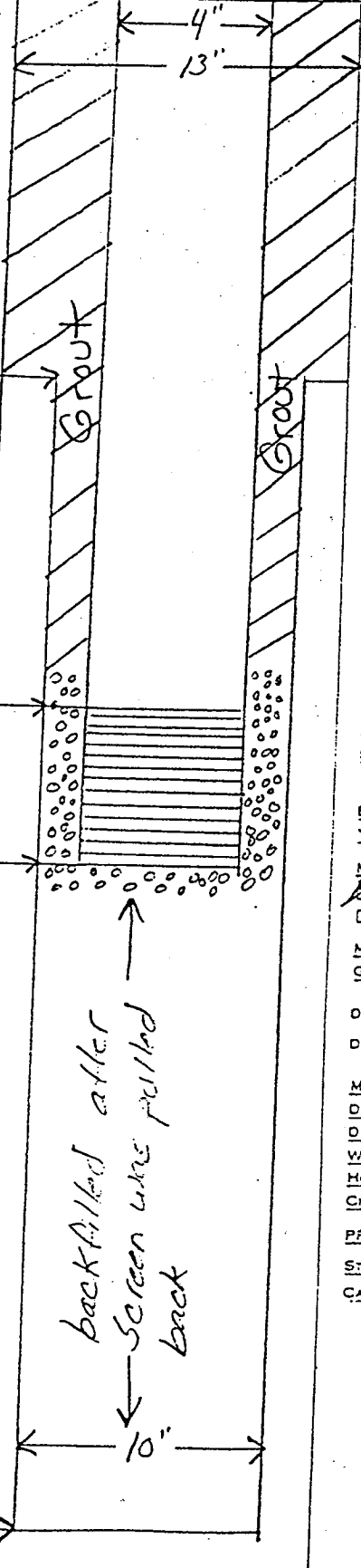
160-200' - coarse sand

200-260' - gray sandy
 clay & shell

260-310' - shell & coarse
 sand

310-362' - gray clay 165'

Water Samples
 taken @ 165'-175'
 @ 262'-272'



PIPE SET:

DIA.	WALL	LGTH.	MATL.	T & C (OR WELDED)
12"	.375	97	Steel	Welded

PIPE LEFT IN PLACE:

DIA.	WALL	LGTH.	MATL.	T & C (OR WELDED)
4"	sch. 40	165	Steel	T&C

SCREEN:

NOM. SIZE	I.D.	LGTH.	OPNG.
4"	4"	10	.025

MFG. COOK TYPE Wire Wreath METAL ST. ST GA. No.
 SET IN Coarse Sand FORMATION
 WELL UNDERREAMED TO _____ DIAMETER

MISCELLANEOUS:

R & L BACK OFF	CUT OFF	PACKER TYPE

CONE:

DIA. TOP	DIA. BOTT.	LGTH.	MTL.

PLUG:

DIA.	LGTH.	MTL.

GRAVEL:

AMT.	BAGS PWOR.	CLAY:
12 50 lb. bags		

SIZE # 2 Morie BAGS LAYNEITE B-3

CEMENT:

BAGS USED	CLAY	SEAL:
35 100 lbs		

YOS. CONCRETE _____ LGTH. _____

METHOD OF DRILLING:
 STD. ROT. REV. ROT. CABLE TOOL AIR ROT.
 OTHER _____

MEASUREMENTS:
 GROUND ELEV. _____ ABOVE SEA LEVEL
 DEPTH OF WELL AFTER PLUG. _____ } FROM GRO. LEV.
 DEPTH TO GRAVEL WALL 155 } FROM TOP OF CASING
 ORIG. GRO. LEV.

MISCELLANEOUS:
 DATE WORK STARTED _____ DATE FIRST PUMPED _____
 DID WELL CLEAR UP _____ HOW SOON _____
 WAS SAND PUMPED _____ HOW LONG _____
 HOW LONG AGITATED _____ HOW LONG PUMPED _____
 CHEM. USED TO DEVELOP _____ SAMPLE TAKEN _____

PRELIMINARY TEST DATA:
 STATIC LEVEL _____ DATE _____ WATER TEMP. _____
 CAPACITY _____ GPM WITH _____ PUMPING LEVEL _____

SKETCH OF LOCATION

SIGNATURE OF DRILLER



Geophysical Well Survey

CUSTOMER: Stumpy Point HUA # DR9706

ENGINEER: Hobbs, Upchurch & Assoc.

LOCATION: Stumpy Point, NC

ADDRESS: 20009 Croaton Highway

COUNTY: Dare STATE: NC

PO Drawer 429

WELL NO. Pilot Test DEPTH: 357'

Kill Devil Hills, NC 27948

HOLE DIAMETER: 10-inch

MUD: Quick Gel/ Quick Troll

CASING: 4-inch

DATE: 1-13-98

TYPE OF SURVEY: SP & Resistivity

LOGGED BY: Art Reinheimer

PROVIDED BY Hydro Group, Inc.
11287 Central Drive
Ashland, VA 23005

COMMENTS: _____

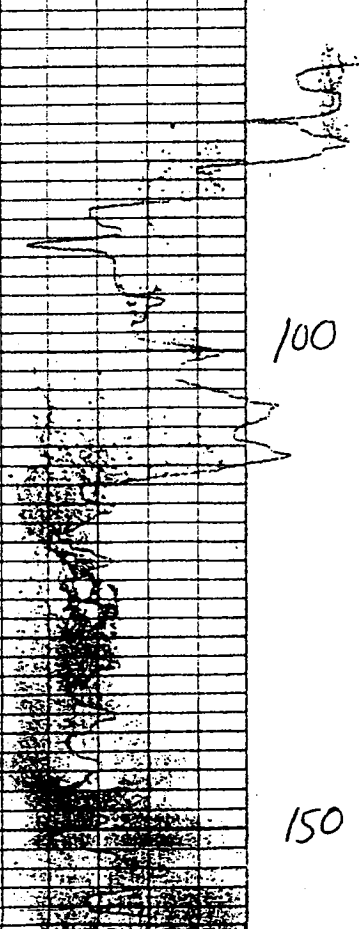
SP @ 50 Ohms

0

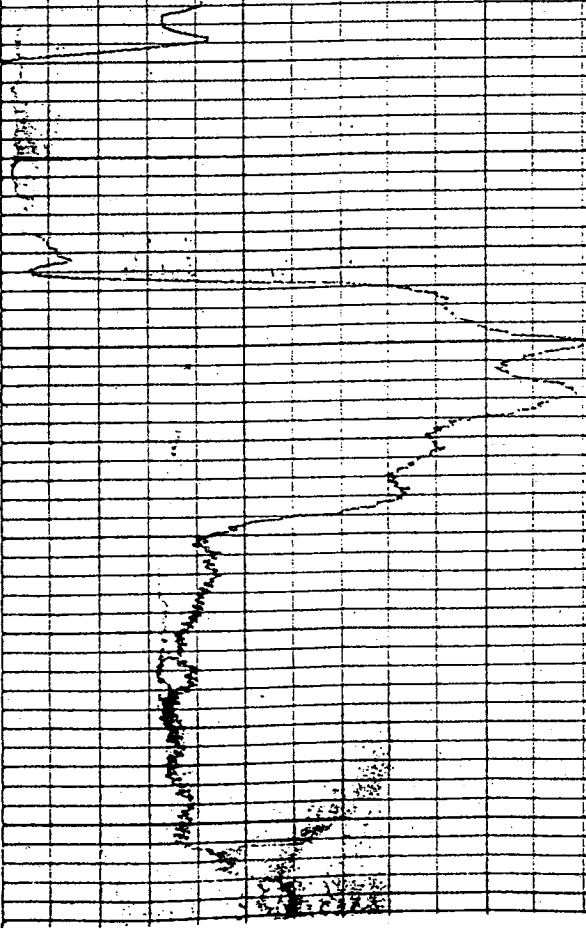
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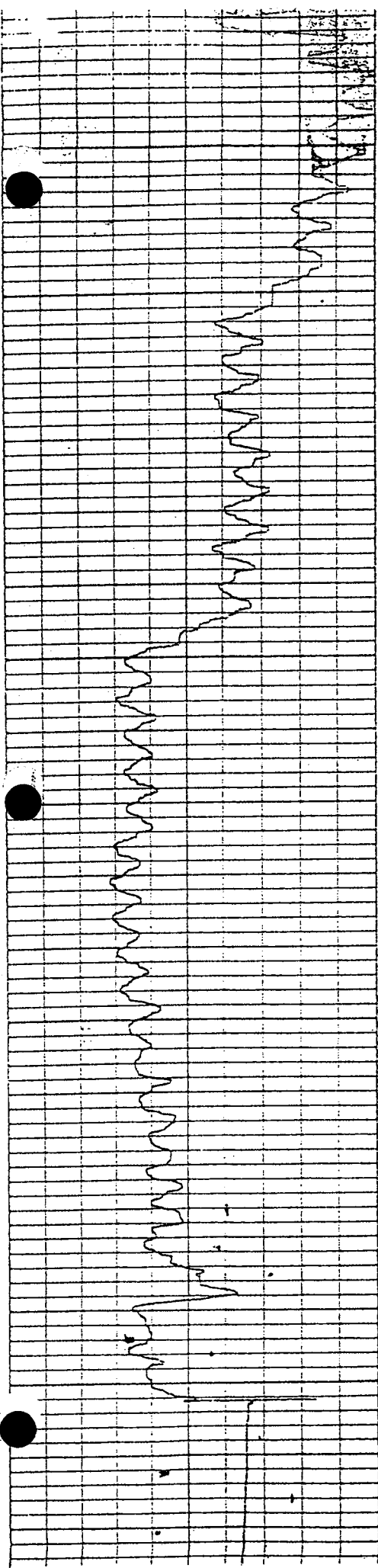
100

150



Res @ 20 Ohms





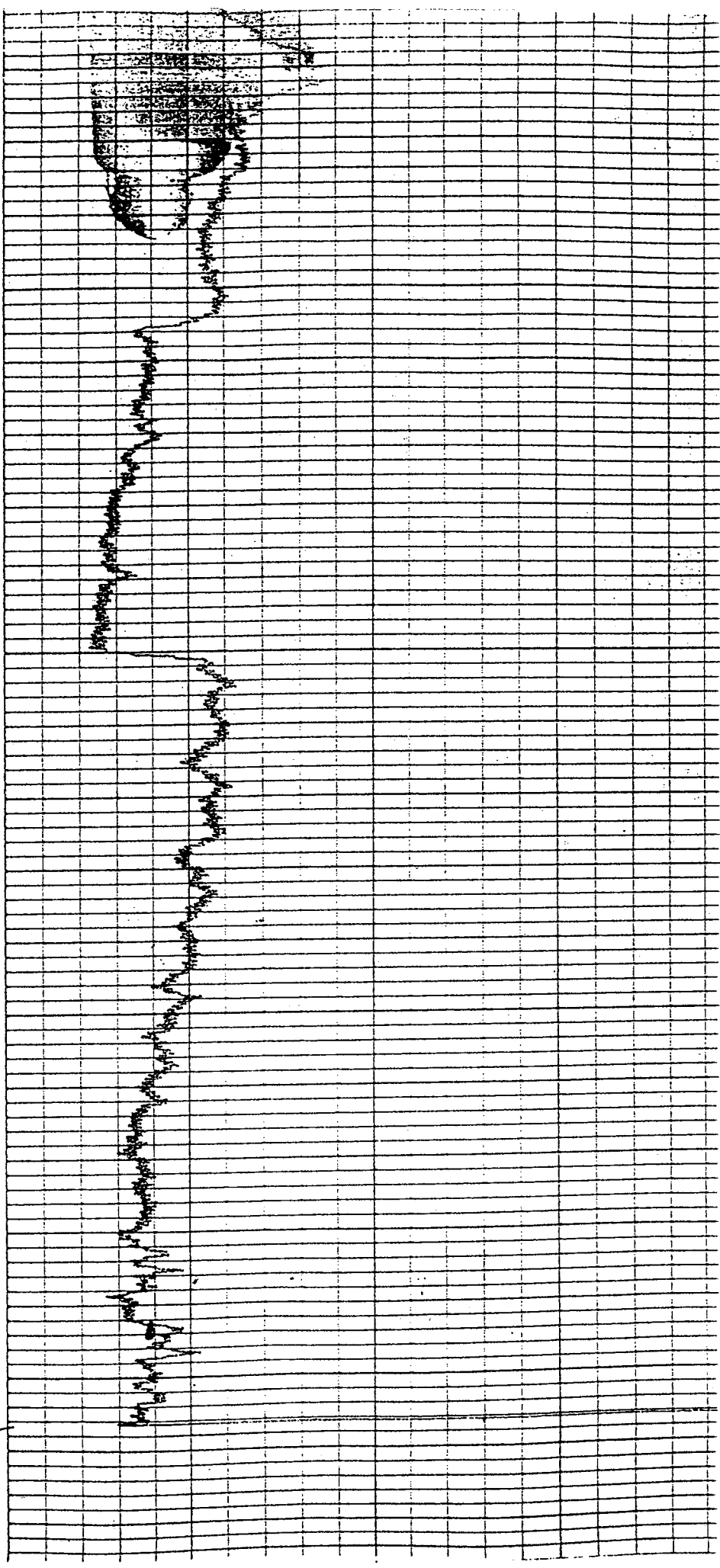
200

250

300

350

357





Geophysical Well Survey

CUSTOMER: Stumpy Point HUA #DR9706

ENGINEER: Hobbs, Puchurch & Assoc.

LOCATION: Stumpy Point, NC

ADDRESS: 2009 Croaton Highway

COUNTY: Dare STATE: NC

Po Drawer 429

WELL NO. Pilot Test DEPTH: 357'

Kill Devil Hills, NC 27948

HOLE DIAMETER: 10-inch

MUD: Quick Gell/ Quick Troll

CASING: 4-inch

DATE: 1-13-98

TYPE OF SURVEY: GAMMA

LOGGED BY: Art Reinheimer

PROVIDED BY Hydro Group, Inc.
11287 Central Drive
Ashland, VA 23005

COMMENTS: _____

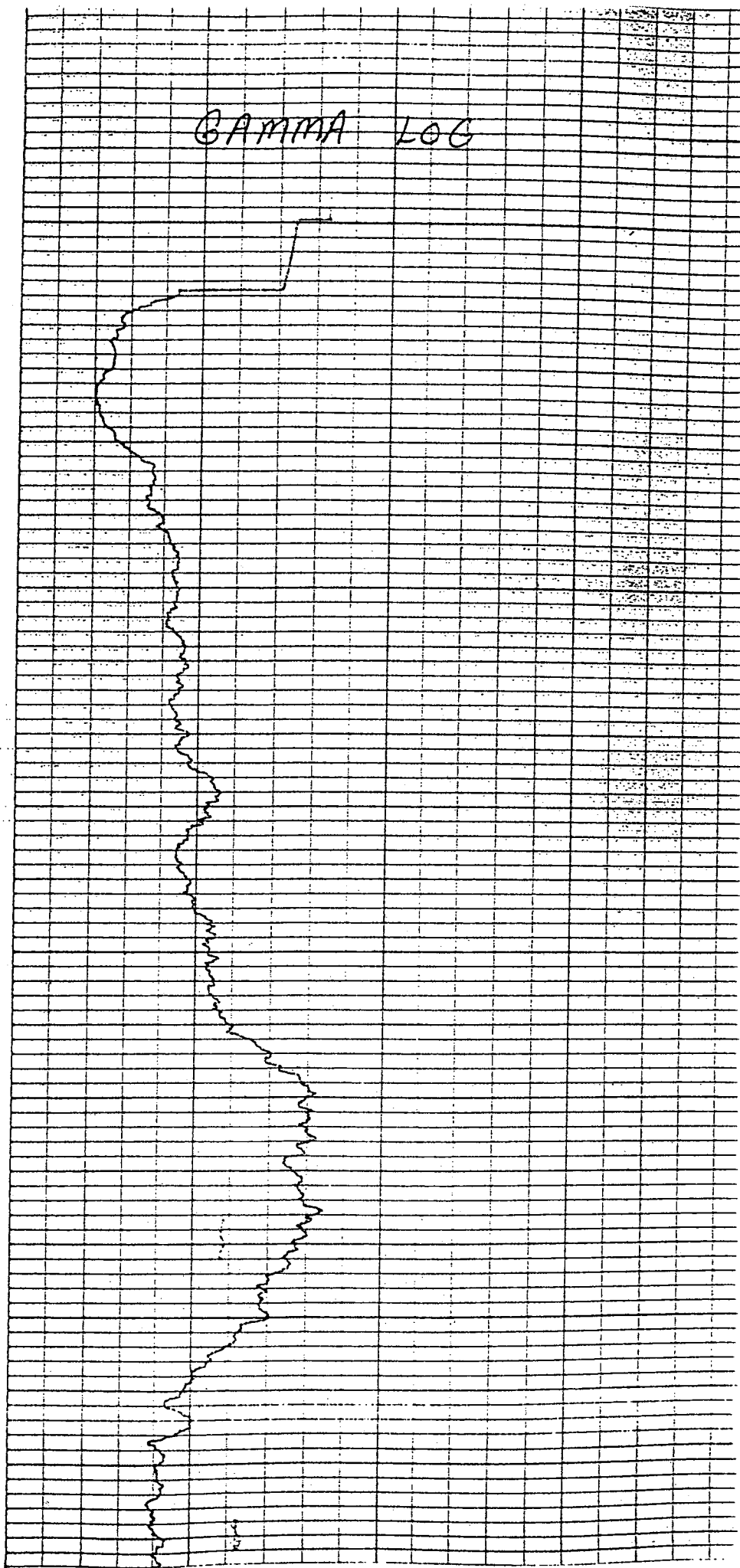
GAMMA LOG

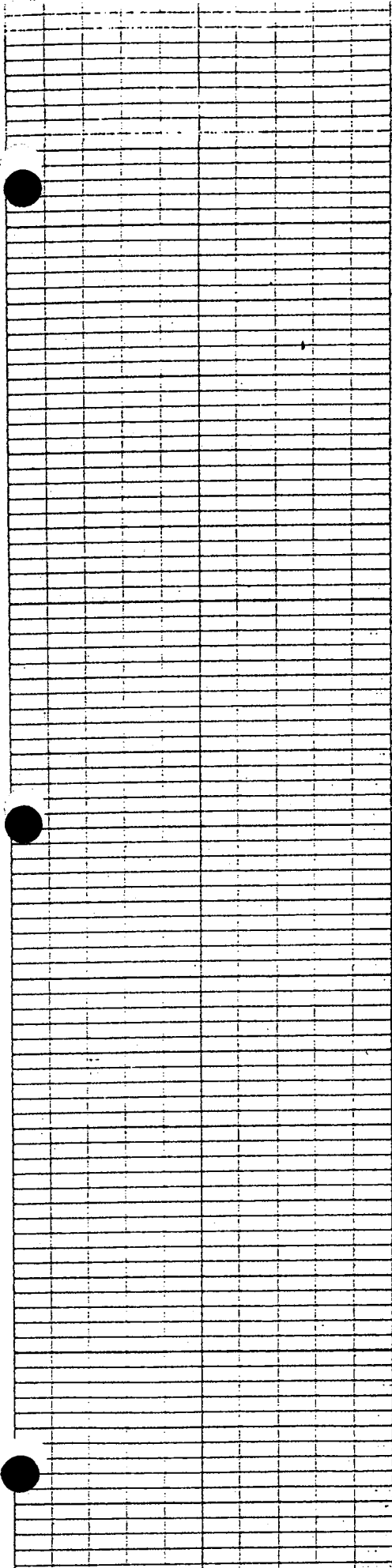
0

50

100

150





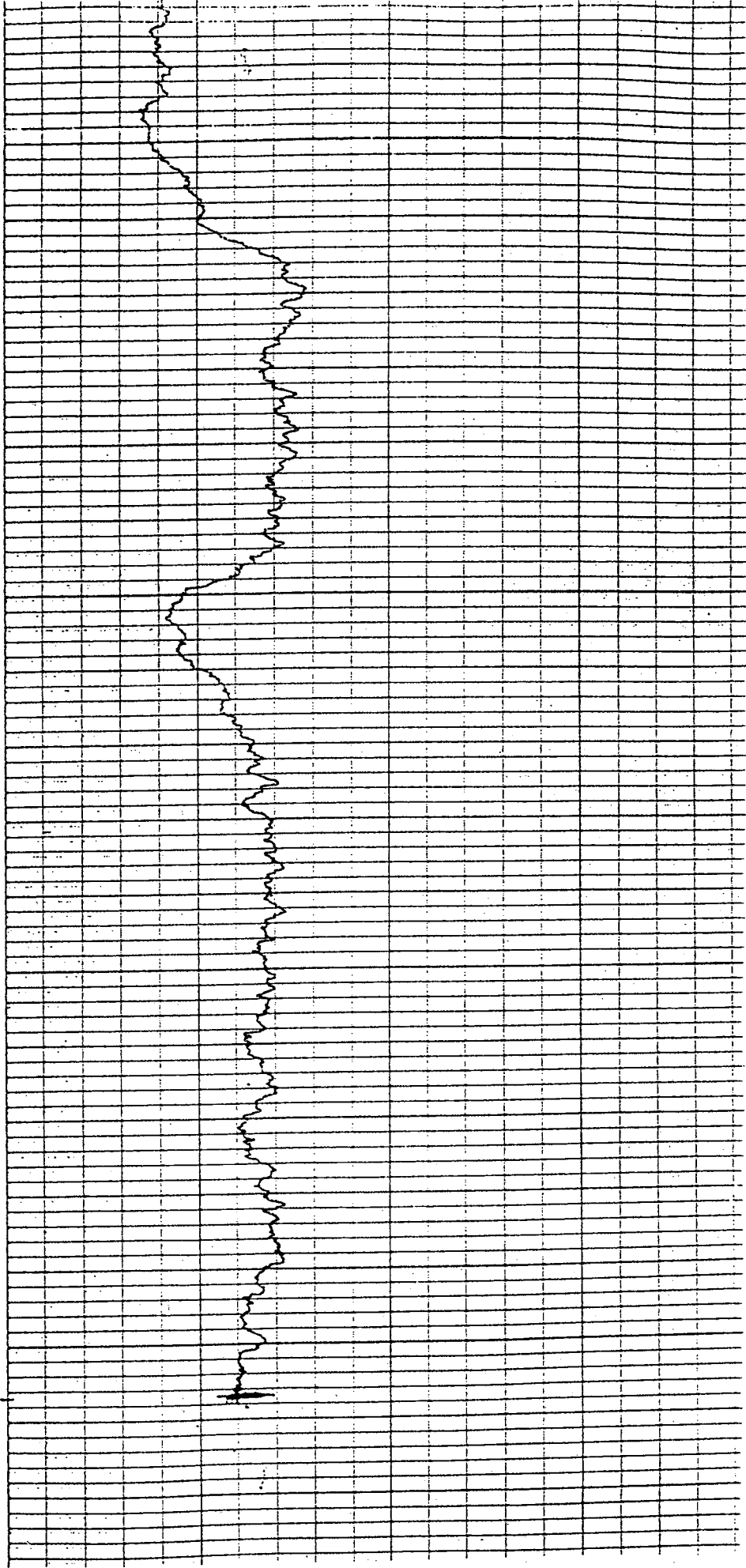
200

250

300

350

357



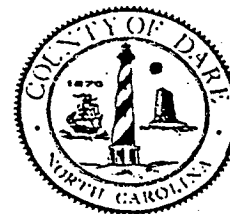
DARE COUNTY, NORTH CAROLINA

Date Sample Drawn: (1) 1-20-98 (2) 1-21-98

Date Analysis Completed: (1) 1-21-98

(2) 1-22-98

By Whom: TO, TB



Water Treatment Plant: Skyco Water Plant

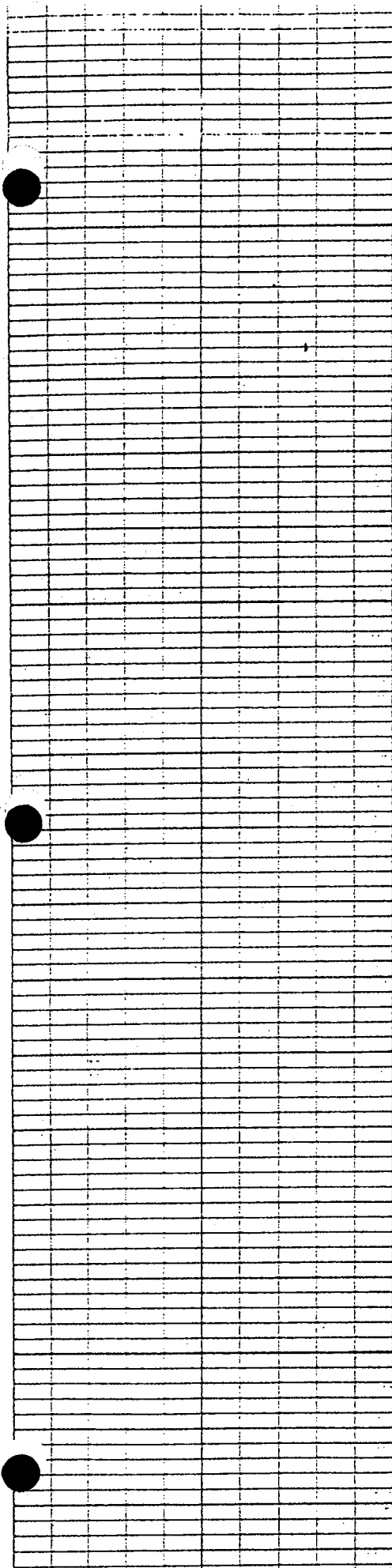
Certificate of Analysis or Test

	(1) 260' Depth	(2) 170' Depth	Max Contaminant Level
P - Alkalinity as CaCO ₃ , mg/l	90	60	N/A
Total Alkalinity CaCO ₃ , mg/l	200	750	N/A
Bicarbonate as HCO ₃ , mg/l	243	915	N/A
Carbonate as CO ₃ , mg/l	0	0	N/A
Hydroxide as OH, mg/l	0	0	N/A
Total Hardness as CaCO ₃ , mg/l	80	54	150.0 *
Calcium Hardness as CaCO ₃ , mg/l	28	30	N/A
Magnesium as CaCO ₃ , mg/l	52	24	N/A
Calcium as Ca, mg/l	11.2	12	60.0 *
Color, C.U. (Color Units)	796	1093	15.0 *
Silica as SiO ₂ , mg/l	8.8	53	N/A
Conductivity as μmhos/cm	3660	2100	N/A
Iron, Fe, mg/l	8	.17	0.30 *
Potassium, K, mg/l	41.2	14.79	N/A
Copper, Cu, μg/l	.98	.02	1,300 μg/l ☆
Manganese, Mn, mg/l	.21	.24	.05 *
Phosphate as PO ₄ , mg/l	.25	.39	5.0 *
Chloride as Cl ⁻ , mg/l	1100	441	250.0 *
Fluoride as F, mg/l	1.06	.87	4.0 *
Nitrate as NO ₃ , mg/l	.308	.176	10.0 *
Zinc as Zn, mg/l	.028	.016	5.0 *
Chlorine (free Cl ₂), mg/l	----	---	0.2 *
Lead as Pb, μg/l	----	---	15 μg/l ☆
Corrosiveness	.002	.930	N/A
pH	8.68	8.80	6.5—8.5 *
pHs	8.6	7.86	N/A
Turbidity, N.T.U.	55	25	1.0 *
Total Suspended Solids, mg/l	23.1	74	N/A
Total Dissolved Solids, mg/l	1830	1050	500.0 *
Sulfate as SO ₄ , mg/l	> 90	9.023	250.0 *
Sodium as Na, mg/l (est.)	712	567	250.0 *
Sulfide as S, mg/l	N/A	N/A	N/A

60°

63°

* Recommended State Maximums * Mandatory State Minimum * Mandatory State Maximums ☆ - Action Level N/A Not available - No limit
 mg/l = Parts per million μg/l = Parts per billion



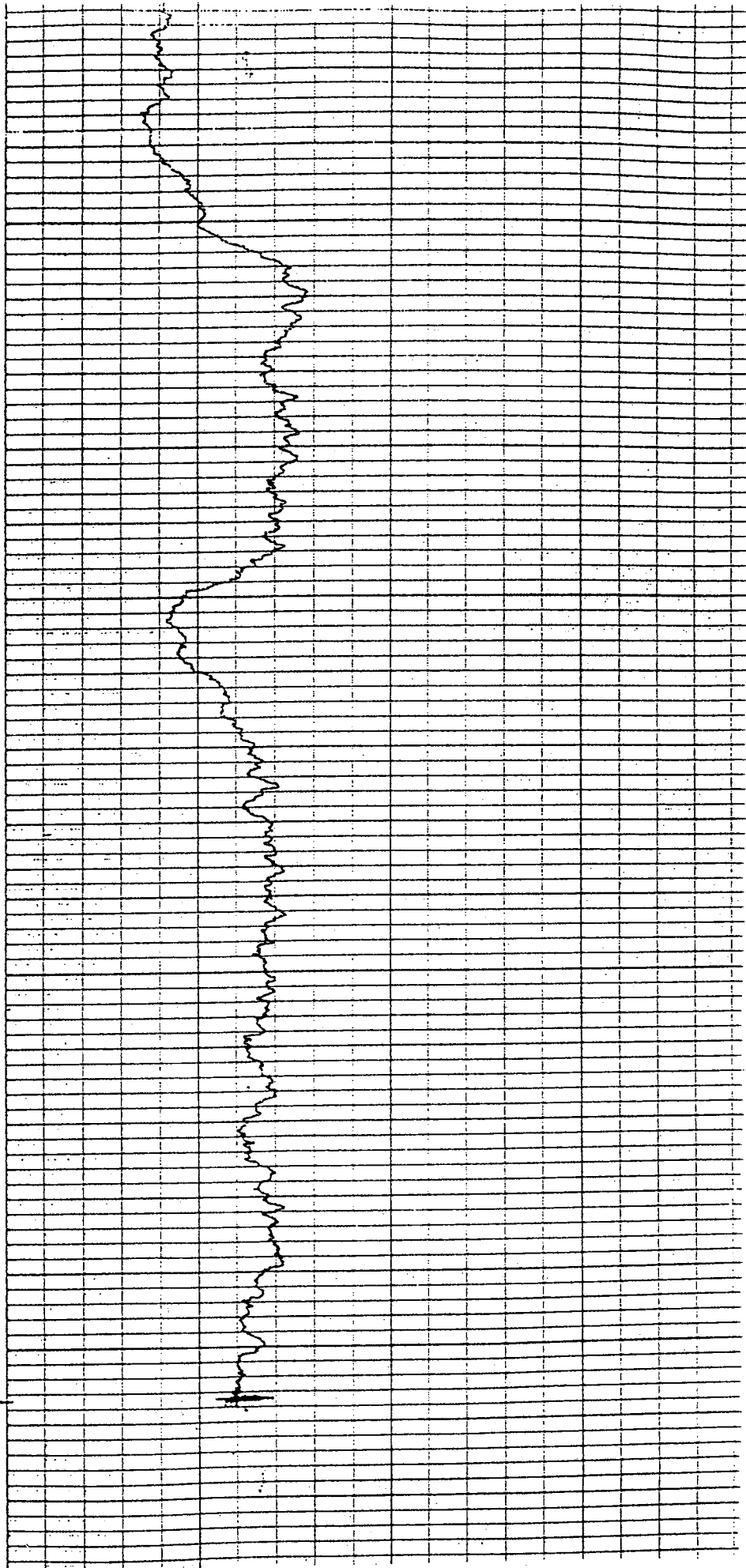
200

250

300

350

357





Analytical and Consulting Chemists

1316 South Fifth Street
Wilmington, N.C. 28401
(910) 763-9793
Fax (910) 343-9688

DATE RECEIVED 01-23-98
DATE REPORTED 01-28-98
98W2324

PAGE 1 OF 1

received
1-30-98

SKYCO/REGIONAL WATER SYSTEM DARE CO. P.O. #
RT. 1 BOX 1690
MANTEO, NC 27594

ATTENTION: DONNIE ROSS

SAMPLE DESCRIPTION: 2 TOC SAMPLES 1-21 & 22-98

- 1. 260 WELL 1-20-98
- 2. 170 WELL 1-21-98

RESULTS

	<u>1</u>	<u>2</u>
Total Organic Carbon, as C, PPM	18.8	21.6

Ken Smith
KEN SMITH, SENIOR ANALYST

XFORD LABORATORIES INC.

Jare County Skyco Water Plant
 Sample Description THM-FP Date 1/20-2/1/98
 . 260' Well
 . 170' Well

DATE RECEIVED: January 23, 1998
 OLI # 98W2325

RESULTS

	(1)	(2)
Chloroform, PPB	1010	100
Bromoform, PPB	17.2	<1.0
Bromodichloromethane, PPB	37.1	21.1
Chlorodibromomethane, PPB	25.6	1.8
Total THM, PPB	1090	122.9
DATE ANALYZED	2-11-98	2-11-98
FORMATION CONDITIONS		
INITIAL	8.8	8.6
Chlorine Dose, mg/l	17.5	23.2
Chlorine Final, mg/l	1.58	0.17
Chlorine Uptake, mg/l	15.9	23.0
Incubation Time, Days	7	7
Incubation Temperature, Degrees F	77	77
Adjusted	7.2	7.2
Final	7.2	7.5

APPENDIX F

DETAILED COST ANALYSIS

Scenario I: Fire Protection, Utilize Site Near Community Building

A. PRODUCTION

1. Wells		
2 EA @ \$60,000 EA		\$120,000
2. 4" Raw Water Main		
1,500 LF @ \$5.75/LF		\$8,625
3. Treatment		
Lump Sum @ \$200,000		\$200,000
4. Discharge		
Lump Sum @ \$100,000		\$100,000
5. Land		
Lump Sum @ \$25,000		\$25,000
	Total Treatment	<u>\$453,625</u>

B. STORAGE

1. 75,000 Gallon Elevated Storage Tank		
Lump Sum @ \$185,000		\$185,000
2. Site Work and Piping		
Lump Sum @ \$20,000		\$20,000
3. Pilings		
Lump Sum @ \$50,000		\$50,000
4. Land		
Lump Sum @ \$25,000		\$25,000
	Total Storage	<u>\$280,000</u>

C. DISTRIBUTION

1. 8" PVC Water Main 13,500 LF @ \$13.00/LF	\$175,500
2. 6" PVC Water Main 4,600 LF @ \$9.00/LF	\$41,400
3. 8" Gate Valve 8 EA @ \$700.00/EA	\$5,600
4. 6" Gate Valve 25 EA @ \$450.00/EA	\$11,250
5. Fire Hydrant Assembly 19 EA @ \$1,700.00/EA	\$32,300
6. Fittings 6,300 LBS. @ \$3.00/LB	\$18,900
7. Bores 200 LF @ \$120.00/LF	\$24,000
8. Water Services 118 EA @ \$375.00/EA	\$44,250
9. Driveway Repair Lump Sum @ \$17,000	\$17,000
Total Distribution	\$370,200

D. TOTAL CONSTRUCTION COST	\$1,103,825
Engineering	\$165,575
Contingencies	\$220,800
Grand Total (Rounded)	\$1,491,000

E.	TOTAL CONSTRUCTION EXCLUDING LAKE WORTH	\$1,031,450
	Engineering	\$154,720
	Contingencies	\$206,300
	Grand Total (Rounded)	\$1,393,000

**Scenario II: Fire Protection, Utilize Site at
Intersection NC Hwy 264 & SR1100**

A. PRODUCTION

1. Wells		
2 EA @ \$60,000/EA		\$120,000
2. 4" Raw Water Main		
2,500 LF @ \$5.75/LF		\$14,375
3. Treatment		
Lump Sum @ \$200,000		\$200,000
4. Discharge		
Lump Sum @ \$100,000		\$100,000
	Total Treatment	<u>\$434,375</u>

B. STORAGE

1. 75,000 Gallon Elevated Storage Tank		
Lump Sum @ \$185,000		\$185,000
2. Site Work and piping		
Lump Sum @ \$20,000		\$20,000
3. Pilings		
Lump Sum @ \$50,000		\$50,000
	Total Storage	<u>\$255,000</u>

C. DISTRIBUTION

1. 8" PVC Water Main		
14,000 LF @ \$13.00/LF		\$182,000
2. 6" PVC Water Main		
4,100 LF @ \$9.00/LF		\$36,900

3. 8" Gate Valve		
8 EA @ \$700.00/EA		\$5,600
4. 6" Gate Valve		
25 EA @ \$450.00/EA		\$11,250
5. Fire Hydrant Assembly		
19 EA @ \$1,700.00/EA		\$32,300
6. Fittings		
6,300 LBS. @ \$3.00/LB		\$18,900
7. Bores		
200 LF @ \$120.00/LF		\$24,000
8. Water Services		
118 EA @ \$375.00/EA		\$44,250
9. Driveway Repair		
Lump Sum @ \$17,000		\$17,000

Total Distribution	\$372,200
--------------------	-----------

D.	TOTAL CONSTRUCTION COST	\$1,061,575
	Engineering	\$159,250
	Contingencies	\$212,300
	Grand Total (Rounded)	\$1,434,000
E.	TOTAL CONSTRUCTION COST EXCLUDING LAKE WORTH	\$1,000,000
	Engineering	\$150,000
	Contingencies	\$200,000
	Grand Total (Rounded)	\$1,135,000

**Scenario III: Without Fire Protection, Utilize Site
Near Community Building**

A. PRODUCTION

1. Wells		
2 EA @ \$60,000/EA		\$120,000
2. 4" Raw Water Main		
1,500 LF @ \$5.75/LF		\$8,625
3. Treatment		
Lump Sum @ \$200,000		\$200,000
4. Discharge		
Lump Sum @ \$100,000		\$100,000
5. Land		
Lump Sum @ \$25,000		\$25,000
	Total Treatment	<u>\$453,625</u>

B. STORAGE

1. 10,000 Gallon Hydropneumatic Pressure Tank		
Lump Sum @ \$50,000		\$50,000
2. Site Work and Piping		
Lump Sum @ \$20,000		\$20,000
3. Land		
Lump Sum @ \$25,000		<u>\$25,000</u>
	Total Storage	\$95,000

C. DISTRIBUTION

1. 6" PVC Water Main 5,000 LF @ \$9.00	\$45,000
2. 4" PVC Water Main 12,100 LF @ \$6.00/LF	\$72,600
3. 2" PVC Water Main 1,000 LF @ \$4.50/LF	\$4,500
4. 6" Gate Valve 2 EA @ \$450.00/EA	\$900
5. 4" Gate Valve 7 EA @ \$400.00/EA	\$2,800
6. 2" Gate Valve 2 EA @ \$325.00/EA	\$650
7. Blow Off Assembly 1 EA @ \$500.00	\$500
8. Fittings 4,500 LBS @ \$3.00/LB	\$13,500
9. Bores 200 LF @ \$10.00/LF	\$20,000
10. Water Services 118 EA @ \$375.00/EA	\$44,250
11. Driveway Repair Lump Sum @ \$17,000	\$17,000
Total Distribution	<hr/> \$221,700

D.	TOTAL CONSTRUCTION COST	\$770,325
	Engineering	\$115,550
	Contingencies	\$154,050
	Grand Total (Rounded)	\$1,040,000
E.	TOTAL CONSTRUCTION COST EXCLUDING LAKE WORTH	\$731,650
	Engineering	\$109,750
	Contingencies	\$146,330
	Grand Total (Rounded)	\$988,000

**Scenario IV: Without Fire Protection, Utilize Site at
Intersection NC Hwy 264 & SR1100**

A. PRODUCTION

1. Wells		
2 EA @ \$60,000 EA		\$120,000
2. 4" Raw Water Main		
2,500 LF @ \$5.75/LF		\$14,375
3. Treatment		
Lump Sum @ \$200,000		\$200,000
4. Discharge		
Lump Sum @ \$100,000		\$100,000
	Total Treatment	<u>\$434,375</u>

B. STORAGE

1. 100,000 Gallon Hydropneumatic Pressure Tank		
Lump Sum @ \$50,000		\$50,000
2. Site Work and Piping		
Lump Sum @ \$20,000		\$20,000
	Total Storage	<u>\$70,000</u>

C. DISTRIBUTION

1. 6" PVC Water Main		
4,700 LF @ \$9.00/LF		\$42,300
2. 4" PVC Water Main		
12,400 LF @ \$6.00/LF		\$74,400
3. 2" PVC Water Main		
1,000 LF @ \$4.50/LF		\$4,500

4. 6" Gate Valve		
2 EA @ \$450.00/EA		\$900
5. 4" Gate Valve		
7 EA @ \$400.00/EA		\$2,800
6. 2" Gate Valve		
2 EA @ \$325.00/EA		\$650
7. Blow Off Assembly		
1 EA @ \$500.00/EA		\$500
8. Fittings		
4,500 LBS @ \$3.00/LB		\$13,500
9. Bores		
200 LF @ \$100.00/LF		\$20,000
10. Water Services		
118 EA @ \$375.00/EA		\$44,250
11. Driveway Repair		
Lump Sum @ \$17,000		\$17,000
	Total Distribution	<u>\$220,800</u>

D.	TOTAL CONSTRUCTION COST	\$725,175
	Engineering	\$108,775
	Contingencies	\$145,050
	Grand Total (Rounded)	\$979,000

E.	TOTAL CONSTRUCTION COST EXCLUDING LAKE WORTH	\$686,500
	Engineering	\$102,975
	Contingencies	\$137,300
	Grand Total (Rounded)	\$927,000

Attachment C
Environmental Assessment



Hobbs, Upchurch & Associates, P.A.
Consulting Engineers

2009 S. Croatan Highway • P.O. Drawer 429 • Kill Devil Hills, North Carolina 27948

March 26, 1999

Mr. David Goodrich
NCDENR
Division of Water Quality
NPDES Group
512 North Salisbury Street
Raleigh, NC 27604

RE: Request for Speculative Limits
Proposed Reverse Osmosis Water Treatment Facility to Serve Stumpy Point
Dare County, North Carolina
HUA No.: MK9801

Dear Mr. Goodrich:

Dare County proposes to construct a reverse osmosis water treatment plant to supply water to the Stumpy Point community. The proposed water treatment plant has a capacity of 50,000 gallons per day expandable to 75,000 gallons per day. For the Stumpy Point area, it is expected that the water treatment plant will have an 80% recovery or 20% of the total volume will be concentrate discharge. This equates to a 15,000 gallon per day discharge at full buildout.

Attached for your review is a map illustrating the general location of the water treatment plant and the proposed discharge location. We request speculative limits for the discharge into Stumpy Point Bay shown on the attached map. We have also shown an alternate discharge location for speculative limits.

If you have questions or if additional information is needed, please do not hesitate to call.

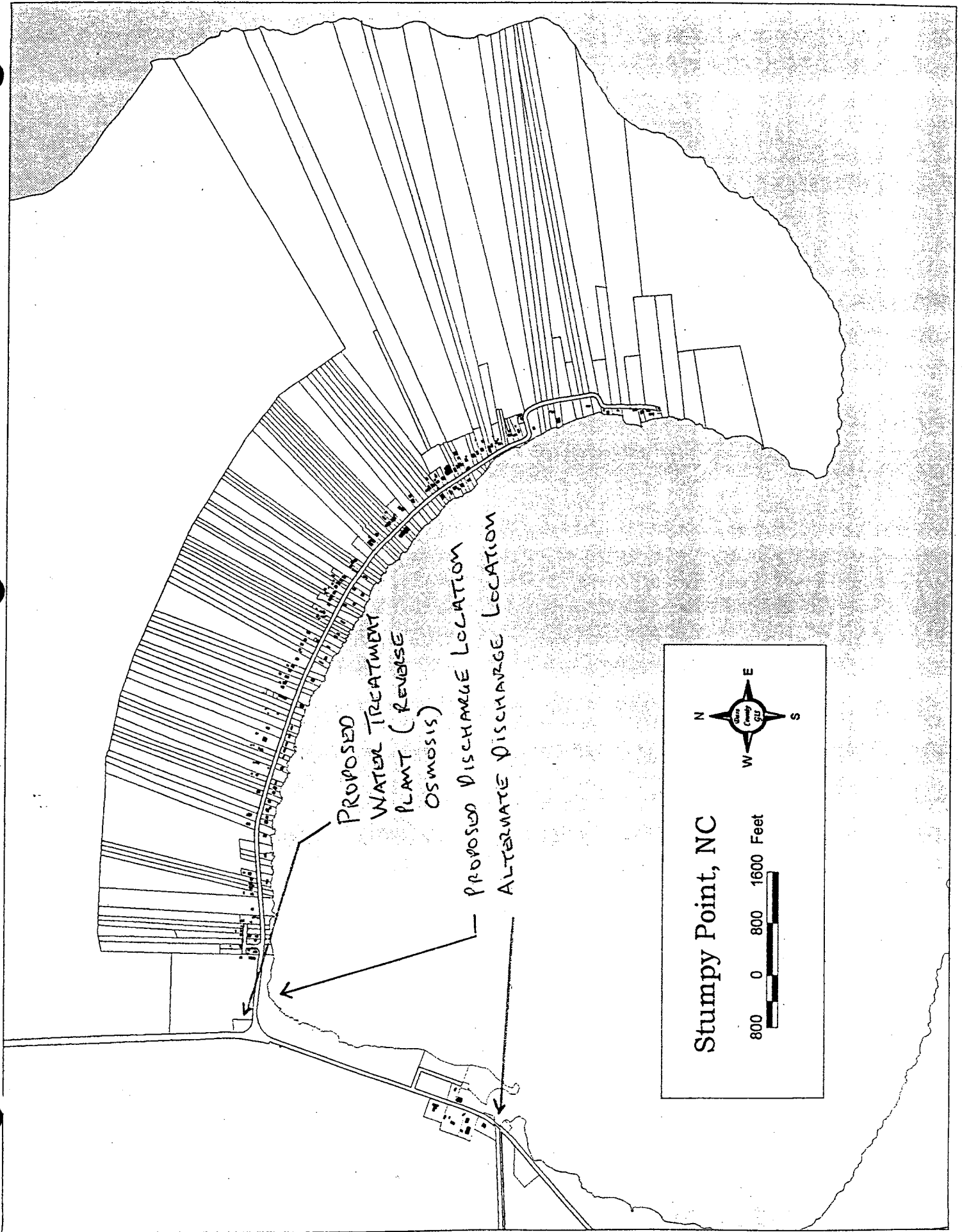
Sincerely
HOBBS, UPCHURCH & ASSOCIATES, P.A.

Eric T. Weatherly, P.E.
Division Manager

Attachment

Cc: Bob Oreskovich, Director, Dare County Water Department

H:\WC CLEAN WATER REVOLVING LOAN & GRANT APPLICATIONS\DARE COUNTY\GOODRICH.DOC



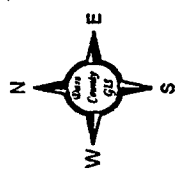
PROPOSED
WATER TREATMENT
PLANT (REVERSE
OSMOSIS)

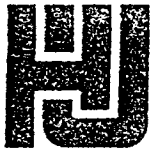
PROPOSED DISCHARGE LOCATION

ALTERNATE DISCHARGE LOCATION

Stumpy Point, NC

800 0 800 1600 Feet





Hobbs, Upchurch & Associates, P.A.
Consulting Engineers

2009 Croatan Highway • P.O. Drawer 429 • Kill Devil Hills, North Carolina 27948

June 17, 1998

North Carolina Department of Administration
State Clearinghouse
116 West Jones St.
Raleigh, NC 27603-8003

RE: Notification of Intent to Apply for Assistance
Stumpy Point Community Water System
Dare County, North Carolina
HUA No.: DR9706 – USDA-RD

To Whom It May Concern:

Please find enclosed Notification of Intent to Apply for Assistance. Dare County proposes to apply for USDA-Rural Development funds to construct a public water system to serve the Stumpy Point community. Eight copies of the Notification of Intent are included with system layout maps and cost estimates.

The proposed system will consist of approximately 18,100 feet of water mains, two potable water wells, a 50,000 gallon per day reverse osmosis water treatment plant, and 75,000 gallon elevated storage tank. The proposed system would provide fire protection for the community. However, USDA-Rural Development funds will not pay for systems with fire protection. We are applying for USDA-Rural Development funds for a system without fire protection consisting of a 10,000-gallon pneumatic tank and smaller diameter water mains. It is the County's intent to seek additional funds for the system with fire protection. Cost estimates for each system is attached.

The proposed water treatment plant and well sites are located at the intersection of N.C. Hwy 264 and SR 1100 on land presently owned by Dare County. The extent of wetlands on this site will have to be determined. In addition, an environmental assessment will have to be prepared for the reverse osmosis concentrate discharge. The most likely discharge point would be into Stumpy Point Bay. A reverse osmosis pilot plant will be conducted to verify discharge concentrate quality.

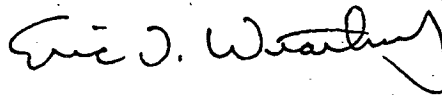
C:\JOB FILES\DARE COUNTY\DR9706 STUMPY POINT WATER STUDY\100-GENERAL-ADMINISTRATIVE\105 GENERAL
CORRESPONDENCE\USDA-RD\NCDOA.061798.DOC

Kill Devil Hills, NC • Telephone 919-441-3913 • FAX 919-441-2100 • e-mail: hua-kdh@beachlink.com
Southern Pines • Myrtle Beach • Raleigh

June 17, 1998

Your assistance in this matter is greatly appreciated. If you have questions or comments, please do not hesitate to contact me.

Sincerely,
HOBBS, UPCHURCH & ASSOCIATES, P.A.



Eric T. Weatherly, P.E.
Division Manager

ETW/hb
Enclosures

Cc: Terry Wheeler, County Manager, Dare County
Bob Oreskovich, Director, Dare County Water Department
Jackie Surles, District Director, USDA-RD, Williamston Office

NOTIFICATION OF INTENT TO APPLY FOR ASSISTANCE
 North Carolina Intergovernmental Review Process
 State Clearinghouse

STATE CLEARINGHOUSE USE ONLY
Application ID #:

CH 1 Type or Print in Black Ink
 IF PROJECT INCLUDES CONSTRUCTION/LAND ALTERATION COMPLETE SIDE 2 ALSO

I. PROJECT INFORMATION

1. Legal Applicant/Recipient: a. Applicant Name: Dare County		b. Organization Unit: Dare County	
c. Street/P.O.Box: P.O. Drawer 1000		d. City: Manteo	e. State: NC
f. Zip Code: 27954		g. County: Dare	
h. Contact Person: Terry Wheeler, County Manager		Phone (Include Area Code): (252) 473-1101	
2. Type Applicant Recipient: (Enter Appropriate Letter) <input checked="" type="checkbox"/> D		3. Congressional District of: a. Applicant: 3rd	
n. State	d. County	g. Special Purpose Dist.	j. Indian Tribe
b. Interstate	e. City	h. Comm Action Agency	k. Other (specify)
c. Substate District	f. School District	i. Higher Ed Institution	b. Project: 3rd
4. Project Title: Stumpy Point Water System		5. Project Start Date: Contingent upon funding	6. Duration: Months: 24
7. Area of Impact (cities, counties, etc.): Unincorporated Community of Stumpy Point		8. Estimated Number of Persons Benefiting 250	9. Has project been reviewed before by State Clearinghouse: <input checked="" type="checkbox"/> NO <input type="checkbox"/> YES Project #:

II. PROPOSED FUNDING

10. Type of Assistance: (Enter Appropriate Letter) <input type="checkbox"/>			11. Type Application: (Enter Appropriate Letter) <input checked="" type="checkbox"/> A		
a. Basic Grant			a. New		
c. Loan			c. Revision		
e. Other (Specify):			e. Augmentation		
b. Supplemental Grant			b. Renewal		
d. Insurance C & A			d. Continuation		
12. Type	Cash	Grant In-Kind	Loan	13. Program	
a. Federal			\$1,025,000	n. Federal Catalog No.	
b. State				b. Title Water & Waste Disposal Systems for Rural Communities 110-4110	
c. City				14. Federal Agency to receive Request (name & complete address):	
d. County				USDA-Rural Development	
e. Other			\$ 371,000	104 Kehukee Park Road	
f. TOTAL			\$1,396,000	Williamston, NC 27892	
15. Estimated Date to be Submitted to Federal Agency:					

III. PROJECT NARRATIVE (Purpose, Expected Accomplishments, Major Tasks-Attach Estimates) Line Item Budget

16. This project will provide a new water system to serve the Stumpy Point Community. The proposed system will alleviate problems with poor residential well water quality and will consist of approximately 18,100 feet of distribution water mains serving a potential 113 residences. A test well has been constructed with determination that Reverse Osmosis Treatment is required. The application to USDA-Rural Development will be a water system with 6", 4" & 2" water mains and a 10,000 gallon hydropneumatic tank (no fire protection). The Owner intends to supplement the project with additional funds for an elevated tank and 8" & 6" water mains with fire hydrants.

17. Name & Title (Certifying Representative):
 Eric T. Weatherly, P.E. - Consulting Engineer
 Signature: *Eric T. Weatherly* Date: 6/15/98

Hobbs, Upchurch & Associates, P.A.

SIDE 2 - COMPLETE ONLY FOR CONSTRUCTION/DEVELOPMENT

A. CURRENT PREDOMINANT LAND USE

a. Urban/Build-Up c. Forest Land e. Wetland (Marsh/Swamp) (Enter Appropriate Letter)
 b. Agricultural d. Water f. Other (Explain):

B. UTILITIES

Water System: <input type="checkbox"/> Central: a. City/Town: b. County: c. Private:		Name _____ _____ _____		<input type="checkbox"/> Individual: a. Well b. Other		Name _____ _____ _____		Line Size Length: _____ Diameter:	Project Demand Per Day: _____ gals
Sewer System: <input type="checkbox"/> Central: a. City/Town: b. County: c. Private:		Name _____ _____ _____		<input type="checkbox"/> Individual: a. Septic b. Other		Name _____ _____ _____		Line Size Length: _____ Diameter:	Project Demand Per Day: _____ gals
Street Improvements <input type="checkbox"/> NO <input type="checkbox"/> YES (describe):									
Have any of the above utilities been constructed: <input type="checkbox"/> NO <input type="checkbox"/> YES (describe):									

C. CULTURAL RESOURCES

List Known Archeological/Historical Sites on Project Land:

Area Previously Surveyed by Archeologist NO YES (give date & name of principal investigator):
 Buildings/Structures on site (abandoned barns, farmhouses, tobacco sheds, bridges, etc.):
 NO
 YES, how many:
 Approximate age of buildings in #3 and construction materials:

6. Will any of these be demolished:

NO
 YES, which:

Attach Photographs of Structures Built Before WW II.

LAND ALTERATIONS

1. Give number of acres to be:				2. Adjacent Land Controlled by Project Sponsor:	
a. Acquired:	b. Developed:	c. Cleared	d. Covered by impermeable surface	a. Acres not yet developed:	b. Current land use: (Enter letter from "A" above) <input type="checkbox"/>
3. Has any site preparation been conducted? <input type="checkbox"/> NO <input type="checkbox"/> YES (describe):					

E. LOCAL IMPACT

1. Give information below about an individual (if known) in appropriate local government unit who can confirm compatibility of proposed activity with existing or proposed Land Use/Economic Development Plans:

a. Name:	b. Local Government Position:	c. Office Phone: ()
----------	-------------------------------	----------------------

2. List all known N.C. Permits, Authorizations, Licenses Received or Applied For:

Permit (R-received A-applied for)	Date	Permit (R-received A-applied for)	Date
<input type="checkbox"/> R <input type="checkbox"/> A		<input type="checkbox"/> R <input type="checkbox"/> A	
<input type="checkbox"/> R <input type="checkbox"/> A		<input type="checkbox"/> R <input type="checkbox"/> A	
<input type="checkbox"/> R <input type="checkbox"/> A		<input type="checkbox"/> R <input type="checkbox"/> A	
<input type="checkbox"/> R <input type="checkbox"/> A		<input type="checkbox"/> R <input type="checkbox"/> A	
<input type="checkbox"/> R <input type="checkbox"/> A		<input type="checkbox"/> R <input type="checkbox"/> A	

F. ADDITIONAL INFORMATION

SUBMIT (eight (8) copies of this form and, if applicable, 8 local site maps (black & white, and _____

Notification of Intent to Apply for Assistance

CH-1 Form
GENERAL INSTRUCTIONS

This form is to be used by state and local agencies of proposed Federally assisted projects. Eight (8) copies with maps, if applicable, should be submitted to the N. C. State Clearinghouse, 116 West Jones Street, Raleigh, NC 27603-8003.

APPLICANT PROCEDURES FOR SIDE 1 (Sections I, II, and III)

All applicants are to complete all items in Side 1. If additional space is needed, insert an asterisk "*", and complete the item on an attached sheet. Following are instructions for each item:

ITEM

1a - 1h. Legal name of applicant/recipient, name of organizational unit responsible for assistance activity. Complete address of applicant, name and phone number of person who can provide pertinent information.

2. Self-explanatory. (City includes towns, township, or other municipality.)

3a. Self-explanatory.

3b. The District(s) where project will be located. If county-wide or state-wide, covering several districts, write "county-wide" or "state-wide".

4. Self-explanatory.

5. Approximate date expected to begin (typically the date funding is expected).

6. Estimated number of months to complete project after funds are available.

7. Governmental unit(s) which may be affected. List the largest units such as counties or cities. If entire State is affected, write "state-wide".

8. Estimated number of persons directly impacted by this project.

9. Indicate if this project has undergone Clearinghouse review for other sources of funding. If yes, provide the assigned number if possible.

10. Check the type(s) of assistance requested, using the following definitions:

- a. Basic Grant - An original request for Federal funds.
- b. Supplemental Grant - a grant available only under certain programs, such as the Appalachian Regional Commission, to assist with projects in localities which cannot provide full local matching share.

10 continued:

- c. Loan. Self-explanatory.
 - d. Insurance. Self-explanatory.
 - e. Other. Explain on remarks page.
11. Use appropriate code letter. Definitions are:

a. New. A submittal for the first time for a new project.
b. Renewal. An extension for an additional funding/budget period for a project having no projected completion date, but for which Federal support must be renewed each year.

c. Revision. A modification which will result in funding change (increase or decrease).

d. Continuation. An extension for an additional funding/budget period for a project the agency initially agreed to fund for a definite number of years.

e. Augmentation. A request for additional funds for a project previously awarded funds in the same funding/budget period. Project nature, scope and timing unchanged.

12. Amounts requested or to be contributed by each source during the first funding/budget period. Value of in-kind contributions will be shown. If the action is a change in dollar amount on an existing grant (a revision or augmentation), indicate only the amount of the change. For multiple program funding, use totals and show program breakdowns in attached remarks.

13a. Program title from Catalog. Abbreviate if necessary.

14. Self-explanatory. Provide complete address.

15. Self-explanatory.

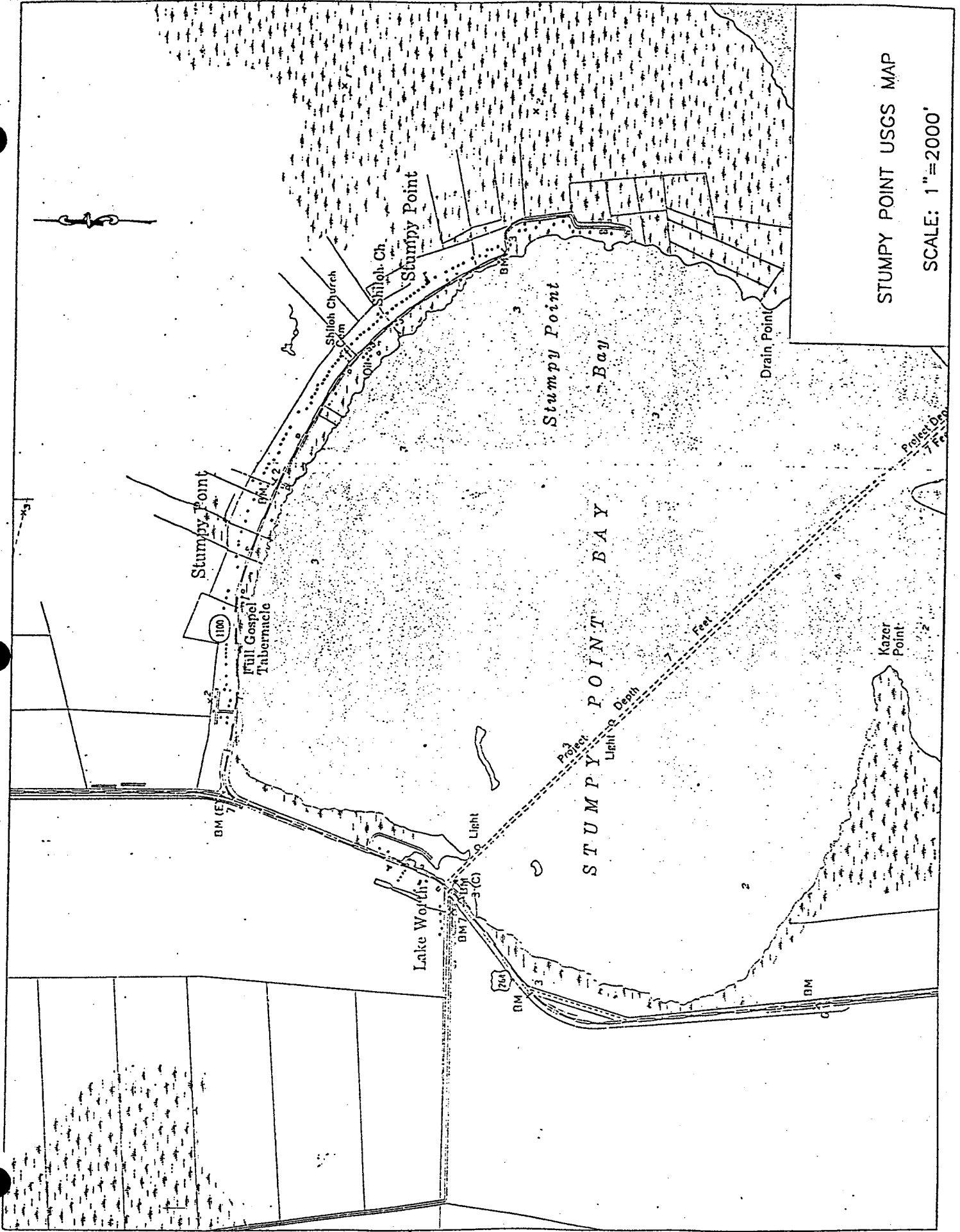
16. Self-explanatory.

17. Self-explanatory.

APPLICANT PROCEDURES FOR SIDE 2

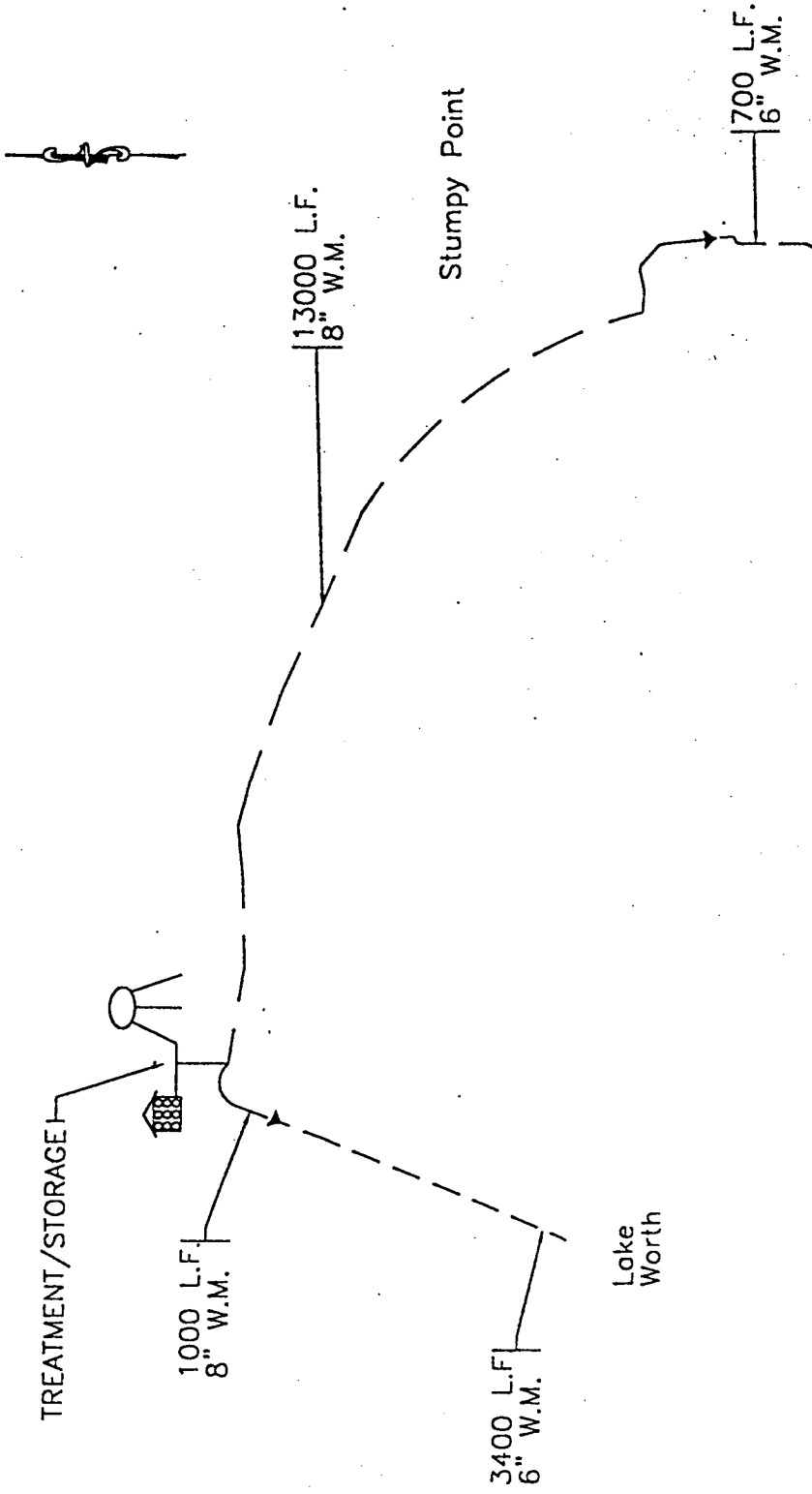
(Construction/Development Projects Only)

Side 2 must be completed for all projects involving development/construction. Attach eight (8 copies) of a reproducible 8 1/2 x 11 site location map. All sections are self-explanatory.



STUMPY POINT USGS MAP

SCALE: 1"=2000'



SYSTEM LAYOUT WITH FIRE PROTECTION AND
 UTILIZATION OF THE SITE NEAR THE N.C. HWY 264
 AND SR 1100 INTERSECTION.

**Scenario II: Fire Protection, Utilize Site at
Intersection NC Hwy 264 & SR1100**

A. PRODUCTION

1. Wells 2 EA @ \$60,000/EA	\$120,000
2. 4" Raw Water Main 2,500 LF @ \$5.75/LF	\$14,375
3. Treatment Lump Sum @ \$200,000	\$200,000
4. Discharge Lump Sum @ \$100,000	\$100,000
Total Treatment	<u>\$434,375</u>

B. STORAGE

1. 75,000 Gallon Elevated Storage Tank Lump Sum @ \$185,000	\$185,000
2. Site Work and piping Lump Sum @ \$20,000	\$20,000
3. Pilings Lump Sum @ \$50,000	\$50,000
Total Storage	<u>\$255,000</u>

C. DISTRIBUTION

1. 8" PVC Water Main 14,000 LF @ \$13.00/LF	\$182,000
2. 6" PVC Water Main 4,100 LF @ \$9.00/LF	\$36,900

3. 8" Gate Valve		
8 EA @ \$700.00/EA		\$5,600
4. 6" Gate Valve		
25 EA @ \$450.00/EA		\$11,250
5. Fire Hydrant Assembly		
19 EA @ \$1,700.00/EA		\$32,300
6. Fittings		
6,300 LBS. @ \$3.00/LB		\$18,900
7. Bores		
200 LF @ \$120.00/LF		\$24,000
8. Water Services		
118 EA @ \$375.00/EA		\$44,250
9. Driveway Repair		
Lump Sum @ \$17,000		\$17,000

Total Distribution		\$372,200
--------------------	--	-----------

D.	TOTAL CONSTRUCTION COST	\$1,061,575
	Engineering	\$159,250
	Contingencies	\$212,300
	Grand Total (Rounded)	\$1,434,000

E.	TOTAL CONSTRUCTION COST EXCLUDING LAKE WORTH	\$1,000,000
	Engineering	\$150,000
	Contingencies	\$200,000
	Grand Total (Rounded)	\$1,350,000

**Scenario IV: Without Fire Protection, Utilize Site at
Intersection NC Hwy 264 & SR1100**

A. PRODUCTION

1. Wells 2 EA @ \$60,000 EA	\$120,000
2. 4" Raw Water Main 2,500 LF @ \$5.75/LF	\$14,375
3. Treatment Lump Sum @ \$200,000	\$200,000
4. Discharge Lump Sum @ \$100,000	\$100,000
Total Treatment	<u>\$434,375</u>

B. STORAGE

1. 100,000 Gallon Hydropneumatic Pressure Tank Lump Sum @ \$50,000	\$50,000
2. Site Work and Piping Lump Sum @ \$20,000	\$20,000
Total Storage	<u>\$70,000</u>

C. DISTRIBUTION

1. 6" PVC Water Main 4,700 LF @ \$9.00/LF	\$42,300
2. 4" PVC Water Main 12,400 LF @ \$6.00/LF	\$74,400
3. 2" PVC Water Main 1,000 LF @ \$4.50/LF	\$4,500

4. 6" Gate Valve		
2 EA @ \$450.00/EA		\$900
5. 4" Gate Valve		
7 EA @ \$400.00/EA		\$2,800
6. 2" Gate Valve		
2 EA @ \$325.00/EA		\$650
7. Blow Off Assembly		
1 EA @ \$500.00/EA		\$500
8. Fittings		
4,500 LBS @ \$3.00/LB		\$13,500
9. Bores		
200 LF @ \$100.00/LF		\$20,000
10. Water Services		
118 EA @ \$375.00/EA		\$44,250
11. Driveway Repair		
Lump Sum @ \$17,000		\$17,000
	Total Distribution	<u>\$220,800</u>

D.	TOTAL CONSTRUCTION COST	\$725,175
	Engineering	\$108,775
	Contingencies	\$145,050
	Grand Total (Rounded)	\$979,000
E.	TOTAL CONSTRUCTION COST EXCLUDING LAKE WORTH	\$686,500
	Engineering	\$102,975
	Contingencies	\$137,300
	Grand Total (Rounded)	\$927,000

STUMPY POINT WATER SYSTEM

SUMMARY OF TOTAL PROJECT COSTS

(Fire Protection/Exclude Lake Worth Area/Facilities
at the N.C. Hwy 264 & SR 1100 Intersection)

Total Construction Cost

—See Breakdown \$1,000,000

Engineering

—PER \$ 10,000

—Design \$ 71,600

—Inspection \$ 75,000

—Additional Services

 Environmental Assessment for Discharge \$ 45,000

 Reverse Osmosis Technical Consultant \$ 30,000

 Plant Site Wetlands Delineation \$ 7,500

\$ 239,100

Owner Administration, Legal and Miscellaneous \$ 20,000

Pilot Plant Rental \$ 10,000

Contingencies

—5% of Construction Cost \$ 50,000

Interest

—one year at 5% \$ 66,455

TOTAL PROJECT COST (Rounded) \$1,396,000

STUMPY POINT WATER SYSTEM

SUMMARY OF TOTAL PROJECT COSTS

(No Fire Protection/Exclude Lake Worth Area/Facilities
at the N.C. Hwy 264 & SR 1100 Intersection)

Total Construction Cost	
—See Breakdown	\$ 686,500
Engineering	
—PER	\$ 10,000
—Design	\$ 54,165
—Inspection	\$ 68,600
—Additional Services	
Environmental Assessment for Discharge	\$ 45,000
Reverse Osmosis Technical Consultant	\$ 30,000
Plant Site Wetlands Delineation	\$ 7,500
	\$ 215,265
Owner Administration, Legal and Miscellaneous	\$ 20,000
Pilot Plant Rental	\$ 10,000
Contingencies	
—5% of Construction Cost	\$ 34,325
Endangered Species Survey	
—Performed by Biologist	\$ 10,000
Interest	
—one year at 5%	\$ 48,800
TOTAL PROJECT COST (Rounded)	\$1,025,000

NORTH CAROLINA DEPARTMENT OF
ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF WATER RESOURCES

July 8, 1998

JUL 27 1998

MEMORANDUM

TO: Melba McGee
Office of Legislative and Intergovernmental Affairs

THROUGH: John Sutherland, P.E. *J.S.*

FROM: Woody Yonts, P.E.

SUBJECT: Clearing House Review
Project No. 98-C-0838
Stumpy Point Water System
Dare County

We have reviewed the Notification of Intent to Apply for Assistance to provide a new public water supply system to serve the Stumpy Point Community. The system can serve 113 customers. The water system will include two wells and a Reverse Osmosis treatment plant. Division of Water Resources comments about the proposed project is as follows:

(1) A Water Supply Plan for the Stumpy Point Water System is required. The Stumpy Point Water System could work with Dare County to prepare the water supply plan.

A package containing materials for completing a water supply plan has been mailed to the Dare County Manager. The County or the representative of the System should contact Woody Yonts, (919) 715-5453, with the Division of Water Resources, if they need assistance or have questions about preparing the water supply plan.

cc: Tony Young, P.E.
Eric T. Weatherly, P.E., Hobbs and Upchurch Engineers ✓



JUN 24 1998

North Carolina
Department of Administration

James B. Hunt, Jr., Governor

Katie G. Dorsett, Secretary

June 22, 1998

Mr. Eric Weatherly
Dare County
c/o Hobbs Upchurch & Associates
P.O. Drawer 429
Kill Devil Hills NC 27948

Dear Mr. Weatherly:

Subject: Proposed New Water System to Serve the Stumpy Point Community in Dare County

The N. C. State Clearinghouse has received the above project for intergovernmental review. This project has been assigned State Application Number 98-C-0000-0838. Please use this number with all inquiries or correspondence with this office.

Review of this project should be completed on or before 07/22/1998. Should you have any questions, please call (919)733-7232.

Sincerely,

A handwritten signature in cursive script that reads "Jeanette Furney".

Ms. Jeanette Furney
Administrative Assistant



North Carolina
Department of Administration

JUL 28 1998

James B. Hunt, Jr., Governor

Katie G. Dorsett, Secretary

July 24, 1998

Mr. Eric Weatherly
Dare County
c/o Hobbs Upchurch & Associates
P.O. Drawer 429
Kill Devil Hills, NC 27948

Dear Mr. Weatherly:

Re: SCH File # 98-C-0000-0838; CFDA # 10.760; Proposed New Water System to Serve the Stumpy Point Community in Dare County

The above referenced project has been submitted to the North Carolina Intergovernmental Review process.

Attached to this letter are comments made by agencies reviewing this document which constitute the state process recommendation. These comments are valid until 07/21/2001 for this review. If the project is submitted for funding after this date, please resubmit for review.

Should you have any questions, please do not hesitate to call me at (919) 733-7232.

Sincerely,

Mrs. Chrys Baggett, Director
N. C. State Clearinghouse

Attachments

cc: Region R
USDA Rural Development, Williamston



North Carolina Department of Cultural Resources

James B. Hunt Jr., Governor
Betty Ray McCain, Secretary

Division of Archives and History
Jeffrey J. Crow, Director

July 15, 1998

Terry Wheeler
Dare County Manager
P.O. Drawer 1000
Manteo NC 27954

Re: Stumpy Point water system,
Dare County, 98-C-0000-0838

Dear Mr. Wheeler:

We have received information concerning the above project from the State Clearinghouse.

We have conducted a review of the project and are aware of no properties of architectural, historic, or archaeological significance which would be affected by the project. Therefore, we have no comment on the project as currently proposed.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, please contact Renee Gledhill-Earley, environmental review coordinator, at 919/733-4763.

Sincerely,

A handwritten signature in cursive script that reads "David Brook".

David Brook
Deputy State Historic Preservation Officer

DB:slw

cc: ✓ State Clearinghouse
Rural Development, Williamston



State of North Carolina
Department of Environment
and Natural Resources
Legislative & Intergovernmental Affairs



James B. Hunt, Jr., Governor
Wayne McDevitt, Secretary
Richard E. Rogers, Jr., Director

MEMO

TO: Chrys Baggett
State Clearinghouse

FROM: Melba McGee
Project Review Coordinator

The Department of Environment and Natural Resources has completed its review. Our regional office within the geographic area of the proposed project has identified permits that may be required prior to project construction. For more information, the project applicant should notify the respective regional office marked on the back of the attached permit form.

Thank you for the opportunity to review.

attachments

RECEIVED

JUL 24 1998

N.C. STATE CLEARINGHOUSE

INTERGOVERNMENTAL REVIEW – PROJECT COMMENTS

Project Number: 98C 0838 Due Date: 7-15-98

After review of this project it has been determined that the ENR permit(s) and/or approvals indicated may need to be obtained in order for this project to comply with North Carolina Law. Questions regarding these permits should be addressed to the Regional Office indicated on the reverse of the form. Applications, information and guidelines relative to these plans and permits are available from the same Regional Office.

PERMITS	SPECIAL APPLICATION PROCEDURES or REQUIREMENTS	Normal Process Time (statutory time limit)
<input type="checkbox"/> Permit to construct & operate wastewater treatment facilities, sewer system extensions & sewer systems not discharging into state surface waters.	Application 90 days before begin construction or award of construction contracts. On-site inspection. Post-application technical conference usual.	30 days (90 days)
<input checked="" type="checkbox"/> NPDES - permit to discharge into surface water and/or permit to operate and construct wastewater facilities discharging into state surface waters.	Application 180 days before begin activity. On-site inspection. Pre-application conference usual. Additionally, obtain permit to construct wastewater treatment facility-granted after NPDES. Reply time, 30 days after receipt of plans or issue of NPDES permit- whichever is later.	90-120 days (N/A)
<input type="checkbox"/> Water Use Permit	Pre-application technical conference usually necessary	30 days (N/A)
<input checked="" type="checkbox"/> Well Construction Permit	Complete application must be received and permit issued prior to the installation of a well.	7 days (15 days)
<input type="checkbox"/> Dredge and Fill Permit	Application copy must be served on each adjacent riparian property owner. On-site inspection. Pre-application conference usual. Filling may require Easement to Fill from N.C. Department of Administration and Federal Dredge and Fill Permit.	55 days (90 days)
<input type="checkbox"/> Permit to construct & operate Air Pollution Abatement facilities and/or Emission Sources as per 15 A NCAC (2Q.0100, 2Q.0300, 2H.0600)	N/A	60 days
<input checked="" type="checkbox"/> Any open burning associated with subject proposal must be in compliance with 15 A NCAC 2D.1900	N/A	60 days
<input checked="" type="checkbox"/> Demolition or renovations of structures containing asbestos material must be in compliance with 15 A NCAC 2D.1110 (a) (1) which requires notification and removal prior to demolition. Contact Asbestos Control Group 919-733-0820.		(90 days)
<input type="checkbox"/> Complex Source Permit required under 15 A NCAC 2D.0800		
<input checked="" type="checkbox"/> The Sedimentation Pollution Control Act of 1973 must be properly addressed for any land disturbing activity. An erosion & sedimentation control plan will be required if one or more acres to be disturbed. Plan filed with proper Regional Office (land Quality Sect.) At least 30 days before beginning activity. A fee of \$30 for the first acre and \$2000 for each additional acre or part must accompany the plan.	20 days (30 days)	
<input type="checkbox"/> The Sedimentation Pollution control Act of 1973 must be addressed with respect to the referenced Local Ordinance.	(30 days)	
<input type="checkbox"/> Mining Permit	On-site inspection usual. Surety bond filed with ENR. Bond amount varies with type mine and number of acres of affected land. Any are mined greater than one acre must be permitted. The appropriate bond must be received before the permit can be issued.	30 days (60 days)
<input type="checkbox"/> North Carolina Burning permit	On-site inspection by N.C. Division Forest Resources if permit exceeds 4 days	1 day (N/A)
<input type="checkbox"/> Special Ground Clearance Burning Permit - 22 counties in coastal N.C. with organic soils	On-site inspection by N.C. Division Forest Resources required "if more than five acres of ground clearing activities are involved. Inspections should be requested at least ten days before actual burn is planned."	1 day (N/A)
<input type="checkbox"/> Oil Refining Facilities	N/A	90-120 days (N/A)
<input type="checkbox"/> Dam Safety Permit	If permit required, application 60 days before begin construction. Applicant must hire N.C. qualified engineer to: prepare plans, inspect construction, certify construction is according to ENR approved plans. May also require permit under mosquito control program. And a 404 permit from Corps of Engineers. An inspection of site is necessary to verify Hazard Classification. A minimum fee of \$200.00 must accompany the application. An additional processing fee based on a percentage or the total project cost will be required upon completion.	30 days (60 days)

	PERMITS	SPECIAL APPLICATION PROCEDURES or REQUIREMENTS	Normal Process Time (statutory time limit)
	Permit to drill exploratory oil or gas well	File surety bond of \$5,000 with ENR running to State of NC conditional that any well opened by drill operator shall, upon abandonment, be plugged according to ENR rules and regulations.	10 days (N/A)
<input type="checkbox"/>	Geophysical Exploration Permit	Application filed with ENR at least 10 days prior to issue of permit. Application by letter. No standard application form.	10 days (N/A)
<input type="checkbox"/>	State Lakes Construction Permit	Application fee based on structure size is charged. Must include descriptions & drawings of structure & proof of ownership of riparian property.	15-20 days (N/A)
<input type="checkbox"/>	401 Water Quality Certification	N/A	60 days (130 days)
<input type="checkbox"/>	CAMA Permit for MAJOR development	\$250.00 fee must accompany application	55 days (150 days)
<input type="checkbox"/>	CAMA Permit for MINOR development	\$50.00 fee must accompany application	22 days (25 days)
<input type="checkbox"/> Several geodetic monuments are located in or near the project area. If any monuments need to be moved or destroyed, please notify: N.C. Geodetic Survey, Box 27687, Raleigh, NC 27611			
<input checked="" type="checkbox"/> Abandonment of any wells, if required must be in accordance with Title 15A, Subchapter 2C.0100.			
<input type="checkbox"/> Notification of the proper regional office is requested if "orphan" underground storage tanks (USTS) are discovered during any excavation operation.			
<input type="checkbox"/> Compliance with 15A NCAC 2H 1000 (Coastal Stormwater Rules) is required.	45 days (N/A)		
<input type="checkbox"/> Other comments (attach additional pages as necessary, being certain to cite comment authority)			

REGIONAL OFFICES

Questions regarding these permits should be addressed to the Regional Office marked below.

- | | |
|----------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/> Asheville Regional Office
59 Woodfin Place
Asheville, NC 28801
(704) 251-6208 | <input type="checkbox"/> Fayetteville Regional Office
Suite 714 Wachovia Building
Fayetteville, NC 28301
(919) 486-1541 |
| <input type="checkbox"/> Mooresville Regional Office
919 North Main Street, P.O. Box 950
Mooresville, NC 28115
(704) 663-1699 | <input type="checkbox"/> Raleigh Regional Office
3800 Barrett Drive, Suite 101
Raleigh, NC 27609
(919) 571-4700 |
| <input type="checkbox"/> Washington Regional Office
943 Washington Square Mall
Washington, NC 27889
919) 946-6481 | <input type="checkbox"/> Wilmington Regional Office
127 Cardinal Drive Extension
Wilmington, NC 28405
(919) 395-3900 |
| <input type="checkbox"/> Winston-Salem Regional Office
585 Waughtown St.
Winston-Salem, NC 27107
(910) 771-4600 | |

NORTH CAROLINA DEPARTMENT OF
ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF WATER RESOURCES

July 8, 1998

MEMORANDUM

JAMES B. HUNT JR.
GOVERNOR

TO: Melba McGee
Office of Legislative and Intergovernmental Affairs

WAYNE MCDEVITT
SECRETARY

THROUGH: John Sutherland, P.E. *J.S.*

FROM: Woody Yonts, P.E.

JOHN N. MORRIS
DIRECTOR

SUBJECT: Clearing House Review
Project No. 98-C-0838
Stumpy Point Water System
Dare County

We have reviewed the Notification of Intent to Apply for Assistance to provide a new public water supply system to serve the Stumpy Point Community. The system can serve 113 customers. The water system will include two wells and a Reverse Osmosis treatment plant. Division of Water Resources comments about the proposed project is as follows:

(1) A Water Supply Plan for the Stumpy Point Water System is required. The Stumpy Point Water System could work with Dare County to prepare the water supply plan.

A package containing materials for completing a water supply plan has been mailed to the Dare County Manager. The County or the representative of the System should contact Woody Yonts; (919) 715-5453, with the Division of Water Resources, if they need assistance or have questions about preparing the water supply plan.

cc: Tony Young, P.E.
Eric T. Weatherly, P.E., Hobbs and Upchurch Engineers

DIVISION OF WATER QUALITY
GROUNDWATER SECTION

MEMORANDUM

TO: Kathy Ford, Administrative Office Manager
Washington Regional Office

THROUGH: ^{WHA} Willie Hardison, Regional Groundwater Supervisor
Washington Regional Office

FROM: ^{sfw} Scott Wood, Hydrogeological Technician I
Washington Regional Office

DATE: July 1, 1998

SUBJECT: Project A95
Stumpy Point Water System
Dare County
A95 Project No.: 98-C-0838

The Groundwater Section has reviewed the above proposal and has determined that this project should not have any adverse impact upon groundwater supply. However, the following comments are pertinent to our review:

- 1) Any water supply well which must be destroyed or relocated must be properly abandoned in accordance with N.C. Well Construction Standards outlined in N.C.A.C. 2C.0113, and an abandonment report filed with the Department as specified in N.C.A.C. 2C.0114.
- 2) A well construction permit will be required from the Department prior to the start of construction for any well or well system with a design capacity of greater than 100,000 gallons per day. Well construction permit applications should be forwarded to the Washington Regional Office, Groundwater Section, for review and issuance (N.C.A.C. 2C.0105).
- 3) Any water supply well constructed must meet the rules and guidelines as outlined in the North Carolina Well Construction Standards (NCAC 2C). All questions related to 2C should be referred to the Groundwater Section in the Washington office at 252-946-6481.
- 4) The Division of Health Services Water Supply Branch should be consulted regarding the site location of the wells and all other requirements of that Division, prior to the start of construction.

- 5) As a result of this project, any chemical or petroleum spills that occur of significant quantity must be reported to the Division of Water Quality in the Washington Regional Office (252-946-6481).
- 6) Any questions or concerns regarding groundwater should be directed to the Groundwater Section in the Washington Regional Office at (252) 946-6481.
- 7) Any soils excavated during construction that show evidence of chemical or petroleum contamination, such as stained soil, odors, or free product must be reported immediately to the local Fire Marshall to determine whether explosion or inhalation hazards exist. Also, notify the Groundwater Section of the Washington Regional Office at (252) 946-6481.

Should you have any questions regarding the above comments, please don't hesitate to ask.

NORTH CAROLINA DEPARTMENT OF
ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF COASTAL MANAGEMENT

MEMORANDUM

TO: Melba McGee, NC Division of Policy and Development
FROM: Steve Benton, NC Division of Coastal Management

SUBJECT: Review of SCH# 98-0838

DATE: 7/21/98

A COPY OF ALL COMMENTS RECEIVED
BY THE SCH IS REQUESTED

REVIEWER COMMENTS
ATTACHED

Review Comments:

This document is being reviewed for consistency with the NC Coastal Management Program pursuant to federal law and or NC Executive Order 15. Agency comments received by SCH are needed to develop the State's consistency position.

Project Review Number (if different from above) _____.

A consistency position will be developed based upon our review on or before _____.

A Consistency Determination document is, or may be required for this project pursuant to federal law and or NC Executive Order 15. Applicant should contact Steve Benton or Caroline Bellis in Raleigh, phone (919)733-2293, for information on proper document format and applicable state guidelines and land use plan policies.

Proposal is in draft form, a consistency response is inappropriate at this time. A Consistency Determination should be included in the final document.

A Consistency Determination Document (pursuant to federal law and/or NC Executive Order 15) is not required.

A consistency response has already been issued.

Project Number _____ Date Issued _____

Proposal involves < 20 Acres and or a structure < 60,000 Square Feet and no AEC's or Land Use Plan problems.

Proposal is not in the Coastal Area and will have no significant impacts on any land or water use or natural resources of the Coastal Area.

A CAMA Permit is, or may be required for all or part of this project. Applicant should contact Lynn Mathis in Elizabeth City, phone # 919-2643901, for information.

A CAMA Permit has already been issued, or is currently being reviewed under separate circulation. Permit Number _____ Date Issued _____

Other (see attached). *Will forward field comments upon receipt*

State of North Carolina Consistency Position:

The proposal is consistent with the NC Coastal Management Program provided that all conditions are adhered to and that all state authorization and/or permit requirements are met prior to implementation of the project.

The proposal is inconsistent with the NC Coastal Management Program.

Other (see attached).

NORTH CAROLINA STATE CLEARINGHOUSE
DEPARTMENT OF ADMINISTRATION
INTERGOVERNMENTAL REVIEW

STATE NUMBER: 98-C-0000-0838

H01

DATE RECEIVED: 06/22/1998

AGENCY RESPONSE: 07/17/1998

REVIEW CLOSED: 07/22/1998

Mr. Chris McAdams
Clearinghouse Coordinator
Dept. of Transportation
Transportation Bldg., Rm. 312
Raleigh NC

RECEIVED

JUL -- 6 1998

N.C. STATE CLEARINGHOUSE

REVIEW DISTRIBUTION

Albemarle Regional Planning Comm
DEHNR - COASTAL MGT
Dept. of Crime Cont./ Public Safety
Dept. of Cultural Resources
Dept. of Environment & Natural Res
Dept. of Transportation

PROJECT INFORMATION

APPLICANT: Dare County

TYPE: Notification of Intent to Apply for Federal Funds

CFDA No: 10.760

DESC: Proposed New Water System to Serve the Stumpy Point Community in Dare County

The attached project has been submitted to the N. C. State Clearinghouse for intergovernmental review. Please review and submit your response by the above indicated date. If additional review time is needed, please contact this office at (919)733-7232.

AS A RESULT OF THIS REVIEW THE FOLLOWING IS SUBMITTED:

NO COMMENT

COMMENTS ~~APPROVED~~

Construction of water system should be coordinated with District Engineers Office in Elizabeth City.

SIGNED BY:

Martin R. Pool, Manager Statewide Planning Branch

DATE:

6-29-98

NORTH CAROLINA STATE CLEARINGHOUSE
DEPARTMENT OF ADMINISTRATION
INTERGOVERNMENTAL REVIEW

STATE NUMBER: 98-C-0000-0838

H01

DATE RECEIVED: 06/22/1998

AGENCY RESPONSE: 07/17/1998

REVIEW CLOSED: 07/22/1998

Clearinghouse Coordinator, Region R
Albemarle Regional Planning Comm
PO Box 646
Hertford NC

RECEIVED

JUL 21 1998

N.C. STATE CLEARINGHOUSE

REVIEW DISTRIBUTION

* Albemarle Regional Planning Comm
DEHNR - COASTAL MGT
Dept. of Crime Cont./ Public Safety
Dept. of Cultural Resources
Dept. of Environment & Natural Res
Dept. of Transportation

PROJECT INFORMATION

APPLICANT: Dare County

TYPE: Notification of Intent to Apply for Federal Funds

CFDA No: 10.760

DESC: Proposed New Water System to Serve the Stumpy Point Community in Dare County

The attached project has been submitted to the N. C. State Clearinghouse for intergovernmental review. Please review and submit your response by the above indicated date. If additional review time is needed, please contact this office at (919)733-7232.

AS A RESULT OF THIS REVIEW THE FOLLOWING IS SUBMITTED:

NO COMMENT

COMMENTS ATTACHED

- support project - need proven to exist

SIGNED BY:

W. F. Parrott Executive Director

DATE:

7-15-98

REQUEST FOR ENVIRONMENTAL INFORMATION

Name of Project
Community Water System
Location Stumpy Point
Dare County, NC

1. Has a Federal, State, or Local Environmental Impact Statement or Analysis been prepared for this project?
 Yes No Copy attached as EXHIBIT I-A.

1b. If "No," provide the information requested in Instructions as EXHIBIT I.

2. The State Historic Preservation Officer (SHOP) has been provided a detailed project description and has been requested to submit comments to the appropriate FmHA Office. Yes No Date description submitted to SHPO _____

3. Are any of the following land uses or environmental resources either to be affected by the proposal or located within or adjacent to the project site(s)? (Check appropriate box for every item of the following checklist).

	Yes	No	Unknown		Yes	No	Unknown
1. Industrial	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	18. Beaches	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Commercial	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	19. Dunes	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Residential	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	20. Estuary	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4. Agricultural	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	21. Wetlands	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Grazing	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	22. Floodplain	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Mining, Quarrying	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	23. Wilderness	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7. Forests	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	(designated or proposed under the Wilderness Act)			
8. Recreational	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	24. Wild or Scenic River	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
9. Transportation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	(proposed or designated under the Wild and Scenic Rivers Act)			
10. Parks	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	25. Historical, Archeological Sites	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. Hospitals	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	(Listed on the National Register of Historic Places or which may be eligible for listing)			
12. Schools	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	26. Critical Habitats	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
13. Open spaces	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	(endangered/threatened species)			
14. Aquifer Recharge Area	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	27. Wildlife	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
15. Steep Slopes	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	28. Air Quality	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
16. Wildlife Refuge	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	29. Solid Waste Management	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
17. Shoreline	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	30. Energy Supplies	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
				31. Natural Landmark	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
				(Listed on National Registry of Natural Landmarks)			
				32. Coastal Barrier Resources System	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4. Are any facilities under your ownership, lease, or supervision to be utilized in the accomplishment of this project, either listed or under consideration for listing on the Environmental Protection Agency's List of Violating Facilities? Yes No

6/24/98
(Date)

Signed: [Signature]
(Applicant)
County Manager
(Title)

Public reporting burden for this collection of information is estimated to average 10 to 40 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Agriculture, Clearance Officer, OIRM, Room 404-W, Washington, D.C. 20250; and to the Office of Management and Budget, Paperwork Reduction Project (OMB No. 0575-0094), Washington, D.C. 20503. Please DO NOT RETURN this form to either of these addresses. Forward to FmHA only.

INSTRUCTIONS FOR PREPARING FORM FmHA 1940-20

Federal agencies are required by law to independently assess the expected environmental impacts associated with proposed Federal actions. It is extremely important that the information provided be in sufficient detail to permit FmHA to perform its evaluation. Failure to provide sufficient data will delay agency review and a decision on the processing of your application.

This information request is designed to obtain an understanding of the area's present environmental condition and the project's elements that will affect the environment. Should you believe that an item does not need to be addressed for your project, consult with the FmHA office from which you received this Form before responding. In all cases when it is believed that an item is not applicable, explain the reasons for this belief.

It is important to understand the comprehensive nature of the information requested. Information must be provided for a) the site(s) where the project facilities will be constructed and the surrounding areas to be directly and indirectly affected by its operation and b) the areas affected by any primary beneficiaries of the project. The amount of detail should be commensurate with the complexity and size of the project, and the magnitude of the expected impact. Some examples:

A small community center project may not require detailed information on air emissions, meteorological conditions and solid waste management.

A water resource, industrial development, or housing development project will require detailed information.

Item 1a - Compare the Environmental Impact Statement or Analysis that was previously prepared with the information requested in the instructions for Item 1b below to be sure that every point in the information request is covered in the Environmental Impact Statement or Analysis. If any of the requested information is not covered, attach to the Environmental Impact Statement or Analysis a supplemental document that corrects any deficiencies or omissions.

Item 1b - Provide responses to the following items in the order listed and attach as EXHIBIT I. In order to understand the full scope of the land uses and environmental factors that need to be considered in responding to these items, it may be helpful to complete Item 3 of the Form before completing these narrative responses. If your application is for a project that FmHA has classified as a Class I action, complete only parts (1), (2), (13), (15), (16), and (17) of this Item. The FmHA office from which you received this Form can tell you if your application falls within the Class I category.

(1) Primary Beneficiaries

Identify any existing businesses or major developments that will benefit from the proposal, and those which will expand or locate in the area because of the project. These businesses or major developments hereafter will be referred to as primary beneficiaries.

(2) Area Description

- (a) Describe the size, terrain, and present land uses as well as the adjacent land uses of the areas to be affected. These areas include the site(s) of construction or project activities, adjacent areas, and areas affected by the primary beneficiaries.
- (b) For each box checked "Yes" in item 3, describe the nature of the effect on the resource. If one or more of boxes 17 through 22 is checked "Yes" or "Unknown," contact FmHA for instructions relating to the requirements imposed by the Floodplain Management and Wetland Protection Executive Orders.
- (c) Attach as Exhibit II the following: 1) a U.S. Geological Survey "15 minute" ("7 1/2 minute" if available) topographic map which clearly delineates the area and the location of the project elements; 2) the Federal Emergency Management Administration's floodplain map(s) for the project area; 3) site photos; 4) if completed, a standard soil survey for the project area; and 5) if available, an aerial photograph of the site. If a floodplain map is not available, contact FmHA for additional instructions relating to the requirements imposed by the Floodplain Management Executive Order.

(3) Air Quality

- (a) Provide available air quality data from the monitoring station(s) either within the project area or, if none exist, nearest the project area.
- (b) Indicate the types and quantities of air emissions to be produced by the project facilities and its primary beneficiaries. If odors will occur, indicate who will be affected.
- (c) Indicate if topographical or meteorological conditions hinder the dispersal of air emissions.
- (d) Indicate the measures to be taken to control air emissions.

(4) Water Quality

- (a) Provide available data on the water quality of surface or underground water in or near the project area.
- (b) Indicate the source, quality, and available supply of raw water and the amount of water which the project is designed to utilize.
- (c) Describe all of the effluents or discharges associated with the project facilities and its primary beneficiaries. Indicate the expected composition and quantities of these discharges prior to any treatment processes that they undergo and also prior to their release into the environment.

- (d) Describe any treatment systems which will be used for these effluents and indicate their capacities and their adequacy in terms of the degree and type of treatment provided. Indicate all discharges which will not be treated. Describe the receiving waters and their uses (e.g., recreational) for any sources of treated and untreated discharge.
- (e) If the treatment systems are or will be inadequate or overloaded, describe the steps being taken for necessary improvements and their completion dates.
- (f) Describe how surface runoff will be handled if not discussed in (d) above.

(5) Solid Waste Management

- (a) Indicate the types and quantities of solid wastes to be produced by the project facilities and its primary beneficiaries.
- (b) Describe the methods for disposing of these solid wastes plus the useful life of such methods.
- (c) Indicate if recycling or resource recovery programs are or will be used.

(6) Transportation

- (a) Briefly describe the available transportation facilities serving the project area.
- (b) Describe any new transportation patterns which will arise because of the project.
- (c) Indicate if any land uses, such as residential, hospitals, schools or recreational, will be affected by these new patterns.
- (d) Indicate if any existing capacities of these transportation facilities will be exceeded. If so, indicate the increased loads which the project will place upon these facilities, particularly in terms of car and truck traffic.

(7) Noise

- (a) Indicate the major sources of noise associated with the project facilities and its primary beneficiaries.
- (b) Indicate the land uses to be affected by this noise.

(8) Historic/Archeological Properties

- (a) Identify any known historic/archeological resources within the project area that are either listed on the National Register of Historic Places or considered to be of local and state significance and perhaps eligible for listing in the National Register.
- (b) Attach as EXHIBIT III any historical/archeological survey that has been conducted for the project area.

(9) Wildlife and Endangered Species

- (a) Identify any known wildlife resources located in the project area or its immediate vicinity.
- (b) Indicate whether to your knowledge any endangered or threatened species or critical habitat have been identified in the project area or its immediate vicinity.

(10) Energy

- (a) Describe the energy supplies available to the project facilities and the primary beneficiaries.
- (b) Indicate what portion of the remaining capacities of these supplies will be utilized.

(11) Construction

Describe the methods which will be employed to reduce adverse impacts from construction, such as noise, soil erosion and siltation.

(12) Toxic Substances

- (a) Describe any toxic, hazardous, or radioactive substances which will be utilized or produced by the project facilities and its primary beneficiaries.
- (b) Describe the manner in which these substances will be stored, used, and disposed.

(13) Public Reaction

- (a) Describe any objections which have been made to the project.
- (b) If a public hearing has been held, attach a copy of the transcript as EXHIBIT IV. If not, certify that a hearing was not held.
- (c) Indicate any other evidence of the community's awareness of the project such as through newspaper articles or public notification.

(14) Alternatives to the Proposed Project

Provide a description of any of the following types of alternatives which were considered:

- (a) Alternative locations.
- (b) Alternative designs.
- (c) Alternative projects having similar benefits.

(15) Mitigation Measures

Describe any measures which will be taken to avoid or mitigate any adverse environmental impacts associated with the project.

(16) Permits

- (a) Identify any permits of an environmental nature which are needed for the project.
- (b) Indicate the status of obtaining each such permit and attach as EXHIBIT V any that have been received.

(17) Other Federal Actions

Identify other federal programs or actions which are either related to this project or located in the same geographical area and for which you are filing an application, have recently received approval, or have in the planning stages.

Item 2 - All applicants are required to provide the State Historic Preservation Officer (SHPO) with (a) a narrative description of the project's elements and its location, (b) a map of the area surrounding the project which identifies the project site, adjacent streets and other identifiable objects, (c) line drawings or sketches of the project and (d) photographs of the affected properties if building demolition or renovation is involved. This material must be submitted to the SHPO no later than submission of this Form to FmHA. Additionally, the SHPO must be requested to submit comments on the proposed project to the FmHA office processing your application.

Item 3 - Self-explanatory.

Item 4 - Self-explanatory.

EXHIBIT I

REQUEST FOR ENVIRONMENTAL INFORMATION

PROPOSED WATER SYSTEM TO SERVE THE STUMPY POINT COMMUNITY

DARE COUNTY, NORTH CAROLINA

1. Primary Beneficiaries

The proposed water system will serve Stumpy Point community residences and small businesses with potable water. The community is in a rural section of the county. Most residences are single family homes with small businesses such as a post office, a small marina, and a few fishing businesses.

The community has very poor soil conditions preventing future growth due to the lack of remaining land for suitable septic tank systems. Therefore, growth is expected to be minimal as a result of the water system until a central sewer system is installed.

2. Area Description

A. The Stumpy Point community is located on the eastern mainland of Dare County. The community surrounds the northern section of Stumpy Point Bay which joins the Pamlico Sound. The community is surrounded by the Alligator River National Wildlife Refuge, Dare County gameland, and the U.S. Air Force – Dare County bombing range.

The terrain is very flat with most areas below 5' in elevation.

B. The project will consist of installation of a water main along the existing road and within the NCDOT right-of-way. The Reverse Osmosis Treatment Plant will require a concentrate discharge. The most likely discharge point is within Stumpy Point Bay. It is possible the pipeline will cross shoreline and wetlands to get to the point of discharge. It is also possible that the water main will cross wetlands along the shoulder of the road due to small creek crossings. A large portion of the project is within the flood plain. Items checked "unknown" will be further determined as a result of the N.C. State Clearinghouse review.

C. Attached is Exhibit II which contains maps of USGS, flood plains and soil survey.

13. Public Reaction

- A. There have been no public objections to this project.
- B. A public hearing has not been held for this project.
- C. The Stumpy Point Civic Association has provided for several presentations to the public outlining the proposed project. Three presentations have been made to the Stumpy Point Civic Association. The public has well attended the Civic Association meetings and expressed their optimism in the project. A presentation has been made at the County Commissioners' Meeting outlining the project. The County Commissioners' Meeting is also televised.

15. Mitigation Measures

No adverse environmental impacts are anticipated as a result of this project.

16. Permits

(a) A list of the anticipated regulatory permits are as follows:

- * NC Dept of Environment and Natural Resources (DENR)
Division of Environmental Health (DEH)
Public Water Supply Section (PWSS)
(Permit to Construct)
- * DENR – Division of Environmental Management (DEM)
National Pollutant Discharge Elimination System (NPDES)
NPDES Group
(Discharge permit R.O. Concentrate)
- * NC Dept. of Transportation (DOT)
(Permit to Construct in ROW)
- * DENR – Division of Land Resources, Land Quality Section
(Erosion and Sedimentation Control Permit)
- * Army Corps of Engineers
(Jurisdictional wetlands, Section 404)
- * DENR – DEM – Water Quality Planning
(Water Quality Certification, Section 401)
- * DENR – DEM – Water Quality Section
(Stormwater Management Permit)
- * DENR – Division of Coastal Management (DCM)
Authorization of:
 - State: Coastal Area Management Act (CAMA)
Dredge and Fill Act
Water Quality Certification (Section 401)
Easement in Public Trust Areas
 - Federal: Rivers and Harbors Act (Section 10, Navigable
Water)
Clean Water Act (Section 404, Jurisdictional Wetlands)

Agencies Involved with DCM:

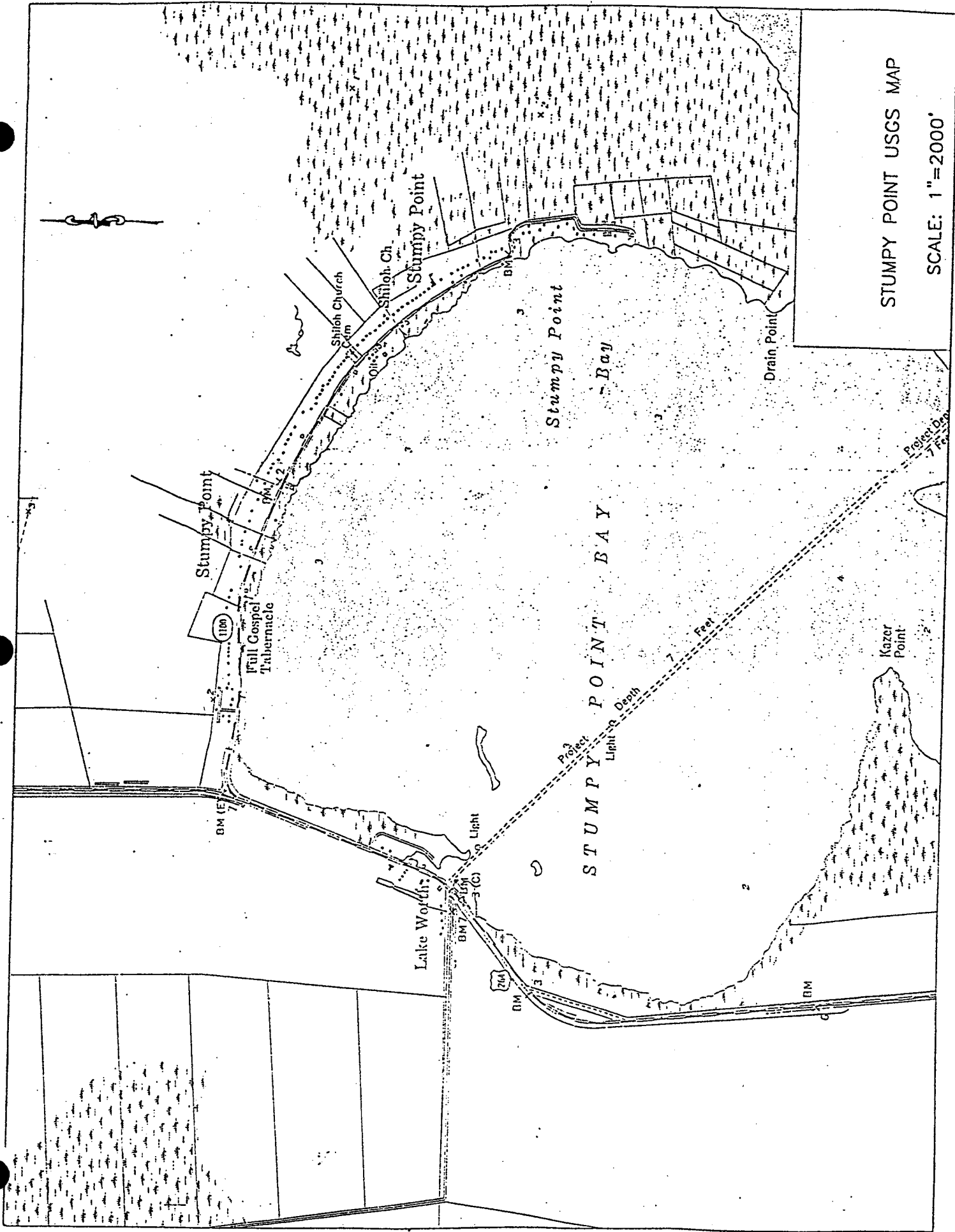
State: Division of Environmental Management
 Division of Marine Fisheries
 Division of Water Resources
 Division of Land Resources
 Division of Environmental Health
 Division of Archives and History
 Wildlife Resources Commission
 Dept. of Administration

Federal:
 Army Corps of Engineers
 Environmental Protection Agencies
 National Marine Fishery Service
 Fish and Wildlife Service

(b) No permits have been applied for at this time.

EXHIBIT II

MAPS



STUMPY POINT USGS MAP

SCALE: 1"=2000'

Stumpy Point

Full Gospel Tabernacle

Shiloh Church

Shiloh Ch.

Stumpy Point

Lake Worth

Kazer Point

Drain Point

Stumpy Point

STUMPY POINT BAY

Project Light to Depth

7 Feet

Project Depth

17 Feet

BM (E)

Light

BM

3 (C)

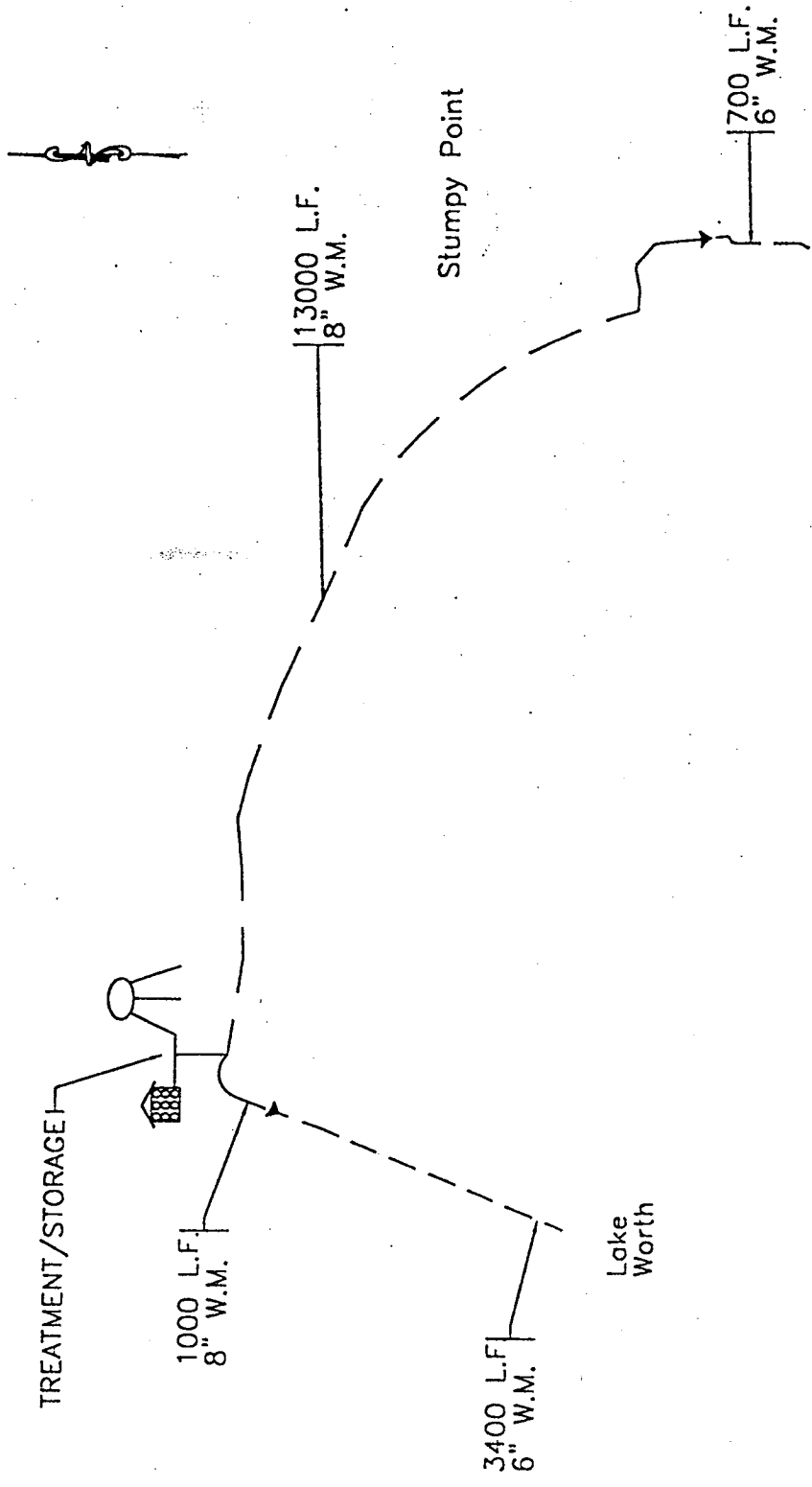
BM

BM

20A

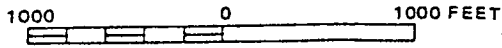
1100





SYSTEM LAYOUT WITH FIRE PROTECTION AND UTILIZATION OF THE SITE NEAR THE N.C. HWY 264 AND SR 1100 INTERSECTION.

APPROXIMATE SCALE



NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

**DARE COUNTY,
NORTH CAROLINA**
(UNINCORPORATED AREAS)

PANEL 435 OF 900
(SEE MAP INDEX FOR PANELS NOT PRINTED)

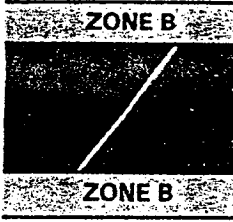
COMMUNITY-PANEL NUMBER
375348 0435 C

MAP REVISED:
FEBRUARY 19, 1986



Federal Emergency Management Agency

KEY TO MAP

500-Year Flood Boundary	—————	
100-Year Flood Boundary	—————	
Zone Designations*		
100-Year Flood Boundary	—————	
500-Year Flood Boundary	—————	
Base Flood Elevation Line With Elevation In Feet**	~~~~~	513
Base Flood Elevation in Feet Where Uniform Within Zone**		(EL 987)
Elevation Reference Mark		RM7 _x
Zone D Boundary	—————	
River Mile		•M1.5

**Referenced to the National Geodetic Vertical Datum of 1929

*EXPLANATION OF ZONE DESIGNATIONS

ZONE	EXPLANATION
A	Areas of 100-year flood; base flood elevations and flood hazard factors not determined.
A0	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined.
AH	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown, but no flood hazard factors are determined.
A1-A30	Areas of 100-year flood; base flood elevations and flood hazard factors determined.
A99	Areas of 100-year flood to be protected by flood protection system under construction; base flood elevations and flood hazard factors not determined.
B	Areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood. (Medium shading)
C	Areas of minimal flooding. (No shading)
D	Areas of undetermined, but possible, flood hazards.
V	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors not determined.
V1-V30	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors determined.

NOTES TO USER

Certain areas not in the special flood hazard areas (Zones A and V) may be protected by flood control structures.

This map is for flood insurance and flood plain management purposes only; it does not necessarily show all areas subject to flooding in the community or all planimetric features outside special flood hazard areas.

The coastal flooding elevations shown may include the effects of wave action and may differ significantly from those developed by the National Weather Service for hurricane evacuation planning. Coastal base flood elevations apply only landward of the shoreline shown on this map.

For adjoining map panels, see separately printed Map Index.

INITIAL IDENTIFICATION:

APRIL 8, 1971

FLOOD HAZARD BOUNDARY MAP REVISIONS:

JULY 1, 1974

wave action and may differ significantly from those developed by the National Weather Service for hurricane evacuation planning. Coastal base flood elevations apply only landward of the shoreline shown on this map.

For adjoining map panels, see separately printed Map Index.

INITIAL IDENTIFICATION:

APRIL 8, 1971

FLOOD HAZARD BOUNDARY MAP REVISIONS:

JULY 1, 1974

FLOOD INSURANCE RATE MAP EFFECTIVE:

OCTOBER 6, 1978

FLOOD INSURANCE RATE MAP REVISIONS:

Map revised October 1, 1983

to add coastal barriers.

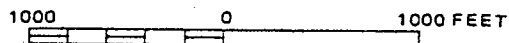
Map revised February 19, 1986

to change special flood hazard areas, base flood elevations, and to reflect new FEMA title block.

To determine if flood insurance is available in this community, contact your insurance agent, or call the National Flood Insurance Program, at (800) 638-6620.



APPROXIMATE SCALE



NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

DARE COUNTY



PUA

BvA

BvA

Stumpy Point

CuA

HyA

PsB

1100

PUA

PsB

PsB

PsB

LAKE WORTH ROAD

Lake Worth

PsB

STUMPY POINT BAY

PsA

CuA

BvA

CuA

CuA

Kazer

PuA

BVA

CuA

HyA

CuA

Stumpy Point

(1100)

HyA

CuA

Stumpy Point

Bay

PaB

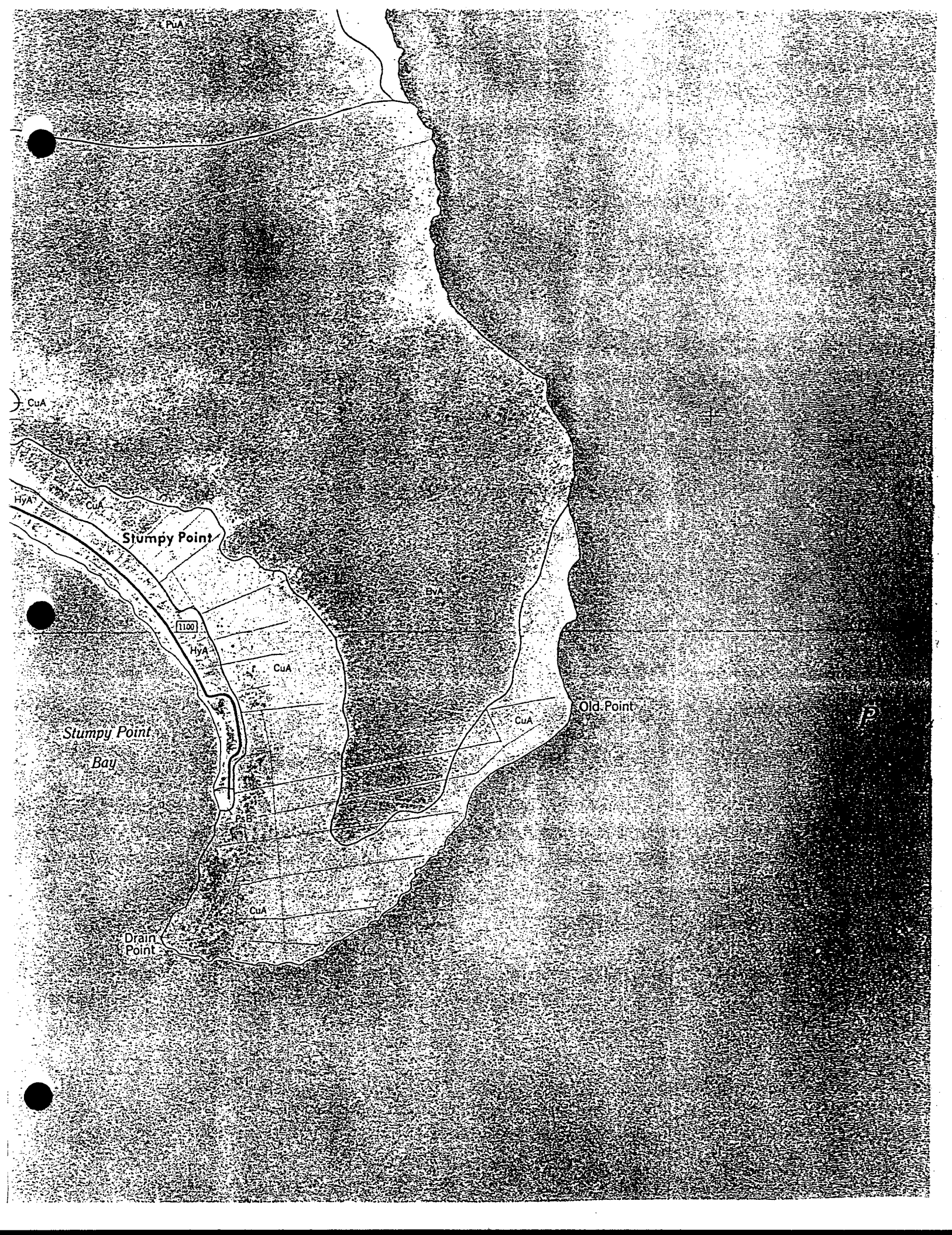
CuA

Drain Point

Old Point

CuA

P



The soil is subject to rare flooding. Flooding occurs only during periods of strong-wind tides or hurricanes:

The Duckston soil is poorly drained. Typically, the surface layer is very dark grayish brown fine sand about 3 inches thick. The upper part of the underlying material is dark grayish brown fine sand and light brownish gray sand. The next part is dark gray sand. The lower part to a depth of 80 inches is gray sand.

Permeability is very rapid above the water table in the Duckston soil. The soil ranges from extremely acid to moderately alkaline. The seasonal high water table is between the surface and 1 foot below the surface. This soil is subject to rare flooding for brief periods.

Included with these soils in mapping are small areas of Newhan soils. These included soils are in the higher positions on dunes, commonly near the ocean side. They make up about 15 percent of the map unit.

The Corolla and Duckston soils are used mainly as habitat for coastal wildlife. The native vegetation varies, depending on the location within mapped areas and on the amount of exposure to salt. The natural vegetation on the Corolla soil consists of sparse stands of saltmeadow cordgrass, northern bayberry, eveningprimrose, largeleaf pennywort, scrubby live oak, blueberry, wild olive, persimmon, ragweed, and Virginia creeper. In areas affected by salt spray, the natural vegetation on the Duckston soil consists of dense stands of saltmeadow cordgrass, waxmyrtle, and northern bayberry. The areas at a greater distance from the salt spray support greenbrier, eastern baccharis, scattered black willow, blueberry, wild olive, and persimmon.

These soils are not used as cropland or woodland because of exposure to salt spray and flooding by salt water.

Wetness, the hazard of flooding, and the lack of adequate outlets for a drainage system are the major limitations affecting the use of these soils for building site development, sanitary facilities, and recreational development. A poor filtering capacity and seepage are additional limitations on sites for sanitary facilities.

The Corolla and Duckston soils are in capability subclass VII_s and VII_w, respectively. No woodland ordination symbol is assigned.

CuA—Currituck mucky peat, 0 to 1 percent slopes, frequently flooded. This nearly level, very poorly drained soil is in broad marshes on the sound side of the Outer Banks north of Collington Island. It also is in depressions between the forested dunes near Buxton. Mapped areas generally are long and narrow and range from 10 to 700 acres in size.

Typically, the surface layer is dark brown muck about 17 inches thick. Below this to a depth of 40 inches is

muck that is very dark brown in the upper part and black in the lower part. The underlying material to a depth of 65 inches is sand. It is black in the upper part and dark grayish brown in the lower part.

Permeability is moderate or moderately rapid. The soil ranges from very strongly acid to moderately acid in the upper organic layers and extremely acid to moderately acid in the lower organic and mineral layers. The seasonal high water table is 1 foot above to 1 foot below the surface. This soil is frequently flooded by changing tides for very long periods.

Included with this soil in mapping are small areas of Carteret and Hobonny soils. Carteret soils are sandy throughout. Hobonny soils are organic throughout. The included soils generally are near the outer edge of the mapped areas. They make up about 10 percent of the map unit.

The dominant native vegetation is black needlerush, maidencane, sawgrass, eastern baccharis, waxmyrtle, willow, and cattail. This soil is used as habitat for wildlife. It is not used for agricultural purposes, commercial tree production, or urban or recreational development because of the frequent flooding, extreme wetness, poor trafficability, and exposure to salt water.

The capability subclass is VIII_w. No woodland ordination symbol is assigned.

DtA—Duckston fine sand, 0 to 2 percent slopes, occasionally flooded. This nearly level, poorly drained soil is on flats and in slight depressions on the Outer Banks. Areas are irregular in shape and range from 5 to 50 acres in size.

Typically, the surface layer is fine sand about 8 inches thick. It is very dark grayish brown in the upper part and dark grayish brown in the lower part. Below this to a depth of 80 inches is sand that is light brownish gray in the upper part and dark gray and gray in the lower part.

Permeability is very rapid above the water table. The soil ranges from extremely acid to moderately alkaline. The seasonal high water table is at or near the surface and fluctuates somewhat in relation to the tides. This soil is occasionally flooded by storm tides for brief periods. It is exposed to varying amounts of salt spray, depending on the proximity to the ocean.

Included with this soil in mapping are small areas of Conaby, Corolla, Newhan, and Osier soils, which are near the outer edge of the mapped areas. Corolla soils are on low knolls, and Newhan soils are on the higher knolls. Conaby soils are on flats and in troughs and depressions, and Osier soils are along marshes and in depressions. Included soils make up 10 to 15 percent of the map unit.

The Duckston soil is used mainly as habitat for

pine, live oak, cherrybark oak, hickory, black cherry, and eastern redcedar. The understory consists mainly of American holly, waxmyrtle, yaupon holly, devilwood, and muscadine grape. The sandy texture, droughtiness, and the slope are the main limitations affecting woodland.

This soil is not used as cropland because of droughtiness and the rapid leaching of plant nutrients.

Moderately steep and steep slopes and seepage limit the use of this soil for building site development and sanitary facilities. Grading can create more favorable slopes for building, but it destroys the native vegetation and causes severe soil blowing. Also, the dune ridges should not be graded because they provide protection from ocean storms and improve the stability of the barrier islands. Soil blowing can be controlled and stability increased by additional plantings of adapted grasses and shrubs. The sandy texture and the excessive slope are the main limitations affecting recreational development.

The capability subclass is VII_s. Based on loblolly pine as the indicator species, the woodland ordination symbol is 6S.

HoA—Hobonny muck, 0 to 1 percent slopes, frequently flooded. This nearly level, very poorly drained soil generally is in marshes on Roanoke Island and the eastern shore of the mainland. It also is on the sound side of the Outer Banks. Mapped areas are irregular in shape and range from 10 to several hundred acres in size.

Typically, the surface layer is very dark grayish brown muck about 16 inches thick. Below this to a depth of 72 inches is muck that is very dark grayish brown in the upper part and dark gray in the lower part.

Permeability is moderate. The soil ranges from extremely acid to strongly acid throughout the organic layers. At least one of the organic layers is very strongly acid or strongly acid. The mineral layers, if they occur, are extremely acid to moderately acid. The seasonal high water table is commonly at or slightly above the surface. The soil is frequently flooded for very long periods.

Included with this soil in mapping are scattered areas of Currituck soils, which have sandy sediments at a depth of 16 to 51 inches. These soils are in landscape positions similar to those of the Hobonny soil. They make up about 10 percent of the map unit.

Most of the acreage of the Hobonny soil supports natural vegetation and is used as habitat for wildlife. The natural vegetation is primarily black needlerush, big cordgrass, maidencane, sawgrass, and cattail (fig. 4).

This soil is not used for cropland, woodland, or urban or recreational development because of excessive

wetness, flooding, excess humus, low strength, and exposure to salt water.

The capability subclass is VII_w. No woodland ordination symbol is assigned.

HyA—Hyde loam, 0 to 2 percent slopes, rarely flooded. This nearly level, very poorly drained soil is on broad flats on the mainland. It is mainly in the central part of the county, around East Lake Community. Mapped areas are irregular in shape and range from 50 to 500 acres in size.

Typically, the surface layer is 13 inches thick. It is black loam in the upper part and very dark gray loam in the lower part. The subsoil is clay loam about 27 inches thick. It is grayish brown in the upper part and dark grayish brown in the lower part. The upper part of the underlying material is gray fine sandy loam. The lower part to a depth of 70 inches is light brownish gray loamy fine sand.

The organic matter content in the surface layer is high. Permeability is moderately slow. The soil is extremely acid to neutral. The seasonal high water table is at or near the surface. This soil is subject to rare flooding.

Included with this soil in mapping are small areas of the clayey Cape Fear soils and the organic Ponzer soils and small areas of Roper soils, which have an organic surface layer. The included soils are mostly in landscape positions similar to those of the Hyde soil. They are near the outer edge of the mapped areas. They make up about 10 percent of the map unit.

The Hyde soil is used mainly as woodland. In places it is used as cropland.

In cultivated areas the principal crops are corn, small grain, and soybeans. Wetness and flooding are the main limitations. Conservation tillage, cover crops, and a cropping system that includes grasses and legumes help to maintain tilth and crop production. Spring tillage and fall harvest can be delayed because of wetness. A scarcity of suitable outlets and the moderately slow permeability limit the installation of drainage systems.

In areas of woodland, loblolly pine, red maple, green ash, sweetgum, elm, pond pine, water oak, and willow oak are the dominant species. The understory includes mainly American holly, sweetbay, sourwood, reeds, and southern waxmyrtle. Wetness and flooding are the main limitations affecting woodland. Installation of a drainage system and bedding of rows help to overcome the excessive wetness. Using standard wheeled and tracked equipment when the soil is wet results in deep ruts, compacts the soil, and damages the roots of trees. The use of equipment should be limited to dry periods from midsummer through early fall, when the water table is lowest.



Figure 4.—Blackneedle rush on Hobonny muck, 0 to 1 percent slopes, frequently flooded. The wooded area in the background is Osier fine sand, 0 to 2 percent slopes, rarely flooded.

Wetness and flooding are the main limitations affecting urban and recreational uses. The severity of these limitations can be reduced by a drainage system.

The capability subclass is IIIw in drained areas, VIw in undrained areas. Based on loblolly pine as the indicator species, the woodland ordination symbol is 10W.

IcA—Icaria loamy fine sand, 0 to 2 percent slopes, rarely flooded. This nearly level, very poorly drained soil is on flats and in depressions on Roanoke Island and in Manns Harbor. Mapped areas are irregular in shape and range from 5 to 100 acres in size.

Typically, the surface is covered with 3 inches of partially decomposed needles, leaves, and twigs. The surface layer is black loamy fine sand about 12 inches thick. The upper part of the subsoil is light brownish gray sandy clay loam about 21 inches thick. The lower part to a depth of 72 inches is dark brown and dark reddish brown sand.

Permeability is moderate in the subsoil. The soil

ranges from extremely acid to strongly acid. The seasonal high water table is at or near the surface. This soil is subject to rare flooding by strong-wind tides and hurricanes.

Included with this soil in mapping are small areas of Hobonny, Ponzer, Belhaven, and Leon soils. These soils are along the outer edge of the mapped areas. They make up 10 to 15 percent of the map unit.

The Icaria soil is used mainly as woodland. The dominant trees are loblolly pine, sweetgum, red maple, water oak, and willow oak. The understory includes mainly American holly, sweetbay, greenbrier, and reeds. Wetness and flooding are the main limitations affecting woodland. Installation of a drainage system and bedding of rows help to overcome excessive wetness.

The Icaria soil in Dare County generally is not used for agricultural purposes. Wetness and flooding are the main limitations.

The main limitation affecting urban and recreational uses is wetness. In some areas flooding is a hazard during hurricanes and strong-wind tides.

and low strength are the main limitations affecting woodland. This soil has a poor load-supporting capacity.

In cultivated areas the principal crops are corn and soybeans. Wetness and flooding are the major limitations affecting cultivation. Spring tillage and fall harvest may be delayed because of the wetness. Large initial applications of lime are necessary for crop production. During spring planting, soil blowing may occur. Conservation practices, such as conservation tillage, field borders, and windbreaks, help to control soil blowing.

The main limitations affecting urban and recreational uses are wetness, flooding, excess humus, and low strength.

The capability subclass is VIIw in undrained areas, IVw in drained areas. Based on loblolly pine as the indicator species, the woodland ordination symbol is 6W.

PsB—Psamments, 0 to 6 percent slopes. This map unit consists of areas where the surface layer and most of the subsoil have been removed. It includes borrow pits, fill and dredged areas, and areas of landfill. Most or all of the natural soil has been disturbed or covered.

The borrow pits are excavated areas from which the soil material has been removed for use as fill for construction. The cuts are 3 to 15 feet deep. The base slope in these cuts is level to gently sloping. Most cuts have two or more short, nearly vertical side slopes. The exposed surface layer consists mainly of sandy marine deposits. The borrow pits range from 3 to about 25 acres in size. Borrow pits less than 3 acres in size are shown on the detailed maps by a special symbol.

Some of the borrow pits have been reclaimed and seeded to grass. A few areas are naturally reseeded to wild grasses, weeds, and loblolly pine. The pits are poorly suited to plant growth because of low fertility.

The fill and dredged areas are commonly near building sites. The fill areas generally are elevated by additions of sandy material, which help to prepare them for more intensive uses, such as building sites. Slopes are nearly level and gently sloping. Most areas are suitable for plant growth. Natural fertility, the available water capacity, and other soil properties vary. The dredged spoils commonly have a poor filtering capacity. As a result, the effluent from septic tanks can pollute ground water and marshes.

The natural soil in landfill areas has been altered. The excavated trenches are filled with alternating layers of solid refuse and sandy soil material. A final cover of about 2 feet of sandy soil is on the surface. After the final cover is added, the surface ranges from nearly level to gently sloping.

Included in mapping is a small area of undisturbed soil. This soil is suited to plant growth. Natural fertility is generally low. A permanent vegetative cover protects the soil from erosion.

The characteristics of the soil material within the mapped areas vary, and the soils commonly require onsite examination for most interpretations.

No capability subclass or woodland ordination symbol is assigned.

PuA—Pungo muck, 0 to 2 percent slopes, rarely flooded. This nearly level, very poorly drained soil is on broad flats throughout the mainland. Mapped areas are irregular in shape and range from 100 to several thousand acres in size.

Typically, the surface is covered with 2 inches of partially decomposed needles, leaves, and twigs. The surface layer is dark reddish brown muck about 10 inches thick. Below this to a depth of 65 inches is dark reddish brown muck. The underlying material to a depth of 72 inches is gray loam.

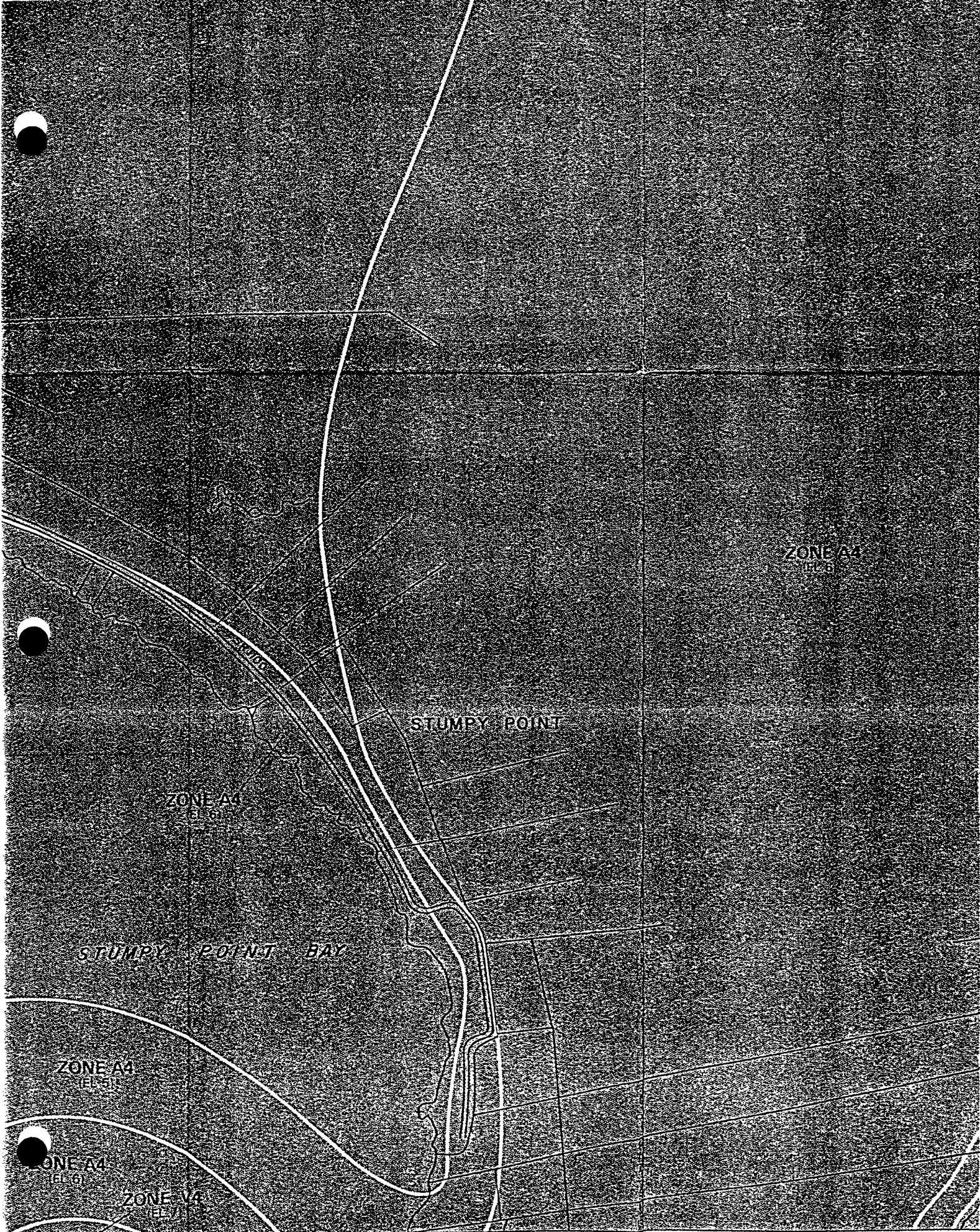
The surface layer consists of highly decomposed, pastelike organic material. Permeability is moderately slow. The soil is extremely acid in the organic layers unless limed. The underlying mineral layers range from extremely acid to neutral. Logs, roots, and stumps are common throughout the profile. The seasonal high water table is at or near the surface. This soil is subject to rare flooding.

Included with this soil in mapping are scattered small areas of Belhaven and Ponzer soils. These soils are very poorly drained. Belhaven soils have organic layers less than 51 inches thick. Ponzer soils do not have pastelike organic layers. Also included are soils in which the underlying mineral soil is sand. The included soils are in landscape positions similar to those of the Pungo soil. They make up about 10 percent of the map unit.

The Pungo soil is used mainly as woodland (fig. 6). A few areas are used as cropland.

In areas of woodland, the dominant native trees are loblolly pine, pond pine, Atlantic white cedar, red maple, swamp tupelo, baldcypress, and sweetbay. The understory includes mainly inkberry, fetterbush lyonia, greenbrier, and huckleberry. Wetness, flooding, and low strength are the main limitations affecting woodland. This organic soil has a poor load-supporting capacity.

In cultivated areas this soil has been intensively drained and is used for corn or soybeans. The main limitations affecting agricultural uses are wetness, flooding, and the high percentage of logs, stumps, and roots in the soil. The pastelike organic layers may harden when the soil is overdrained. They are slow to rewet unless they are pulverized.



ZONE A4
(EL 6)

STUMPY POINT

ZONE A4
(EL 6)

STUMPY POINT BAY

ZONE A4
(EL 6)

ZONE A4
(EL 6)

ZONE V4
(EL 7)

SUNSHINE
POINT

ELEVATION REFERENCE MARKS

REFERENCE ELEVATION
MARKS (FT/MSL)

DESCRIPTION OF LOCATION

WAGON
WORMS

ONEWAY

WAGON

WAGON

WAGON

These marks are to be used for elevation control points. They are to be used in conjunction with the elevation reference marks. The marks are to be used for elevation control points. They are to be used in conjunction with the elevation reference marks. The marks are to be used for elevation control points. They are to be used in conjunction with the elevation reference marks.

Attachment D
LGC Forms 108A and 108C

STATE OF NORTH CAROLINA
DEPARTMENT OF STATE TREASURER

State and Local Government Finance Division
and the Local Government Commission
325 North Salisbury Street, Raleigh, North Carolina 27603-1385

SELECTED FISCAL INFORMATION AS CERTIFIED BY FINANCE OFFICER

Unit _____

1. Ad Valorem Tax (current fiscal year):

Appraised Value	\$ _____	Tax Rate - General Fund	\$ _____
Total Levy	_____	- Other funds	_____
Uncollected At _____	_____	- Total	\$ _____
Percentage Collected	_____ %		

2. For the past 5 fiscal years, has there been a delay in payment or non-payment of matured bonds and coupons when presented to the unit's fiscal agent? _____ (Yes; No). If yes, explain circumstances on separate statement.

3. Information relating to compliance with Local Government Budget and Fiscal Control Act: (If answer to any question in this item is No, furnish explanation.)

A. Purchasing and Contracts	<u>Yes</u>	<u>No</u>
(1) Are purchase orders issued for all commitments over a minimum amount?	_____	_____
(2) Do all purchase orders include a preaudit certificate signed by the finance officer (or properly appointed deputy)?	_____	_____
(3) Are all purchase orders posted to appropriate expenditure accounts as encumbrances?	_____	_____
 B. Other:		
(1) Do checks or drafts on an official depository bear on their face a preaudit certificate, of sufficient unencumbered appropriation signed by the finance officer (or properly appointed deputy)?	_____	_____
(2) Are the finance officer, tax collector, and other employees (as required) properly bonded according to G.S. 159-29?	_____	_____
(3) Did the budget provide for all deficits, if any, as shown in the audit report for the prior year?	_____	_____

C. Please include a description of any material instance of misfeasance or malfeasance (within the last three years) which might affect the credit of the unit. _____

I certify the above is correct to the best of my knowledge.	Finance Officer's Signature	Date
-------------------------------------------------------------	-----------------------------	------

STATE OF NORTH CAROLINA
DEPARTMENT OF STATE TREASURER

State and Local Government Finance Division
and the Local Government Commission
325 North Salisbury Street, Raleigh, North Carolina 2603-1385

PROJECTION OF WATER AND SEWER NET REVENUES

Unit: Dare County
Fund: Stumpy Point Water System

Complete only if the proposed financing is for water or sewer facilities. Where separate accounting funds are maintained for each system, one schedule may be completed for proposed water bond and one for proposed sewer bonds. Water and sewer operations may be consolidated when either water or sewer financing or both are proposed. Use actual amounts on modified accrual basis of accounting (budgetary basis) from latest audit report.

REVENUE	Fiscal Year	Fiscal Year		1+2+3 Estimated Revenue for Fiscal Year After Completion of Project
	1. Actual Revenue for Last Complete Fiscal Year	Estimated Increase or (Decrease)		
		2. Due to Normal Growth and Rate Changes	3. Due to Expanded System	
Operating Revenues:				
Customer charges				25,966.08
Impact fees				
Tap fees				
Other revenues				
Total	0			25,966.08
Non-operating Revenues				
Interest				
Restricted sales tax				
Other				
Total	0			
Total Revenues	0			

EXPENDITURES	Fiscal Year	Fiscal Year		1+2+3 Estimated Revenue for Fiscal Year After Completion of Project
	1. Actual Revenue for Last Complete Fiscal Year	Estimated Increase or (Decrease)		
		2. Due to Normal Growth and Rate Changes	3. Due to Expanded System	
Operating Expenditures				
Administration Salaries				0
Other				
Operations Salaries				0
WTP				4,150.00
Tank Maintenance				6,000.00
Distribution				2,500.00
Total Expenditures	0			12,650.00
Excess Revenue over Expenditures				

Projection of water and sewer net revenues (continued)

Other (Do not include depreciation)

- Debt Principal
- Interest
- Capital outlay
- Capital reserve
- Transfer to (from) other funds
- Other

Total Other

Net Income (Loss)

1. Actual Revenue for Last Complete Fiscal Year	1+2+3 Estimated Revenue for Fiscal Year After Completion of Project
	13,316.08
0	13,316.08
	0

Number of Customers

- Water Residential
- Commercial
- Sewer Residential
- Commercial

Current

After Completion of Project

	96

Current

After Completion of Project

Percentage of Change

Rate and Fee Structure

Indicate monthly cost for an average residential customer:
Average gallons per month (for residential customer):

0	\$22.54 4,000 gal/month
---	----------------------------

WATER

Rate (include minimum cost/thousand gallons, etc.)-residential

	\$18/1st 2,000 gal \$2.27/1,000 gal after 1st 2,000 gal
--	------------------------------------------------------------

Average monthly bill within city limits

	\$22.54
--	---------

Average monthly bill outside city limits

	-
--	---

SEWER

Rate (include minimum, etc.)-residential

--	--

Average monthly bill within city limits

	-
--	---

Average monthly bill outside city limits

	-
--	---

TAP FEE POLICY

N/A

IMPACT FEE POLICY

N/A

Attachment E
Water Use Ordinance and User Charge Structure

Attachment F
Minority Business Enterprise Information

Certification
of
Minority Business Participation

Project Name: _____
("project")

This is to certify that the "project" for which we are applying for loan and/or grant assistance will incorporate the minority business goals as adopted by resolution dated _____ in accordance with N.C.G.S. 143-128. The _____ will report the attained goals to the State of North
(local unit)

Carolina.

Authorized Representative's Name

Authorized Representative's Signature

Date

Attachment G
Resolution Establishing Capital Reserve Fund

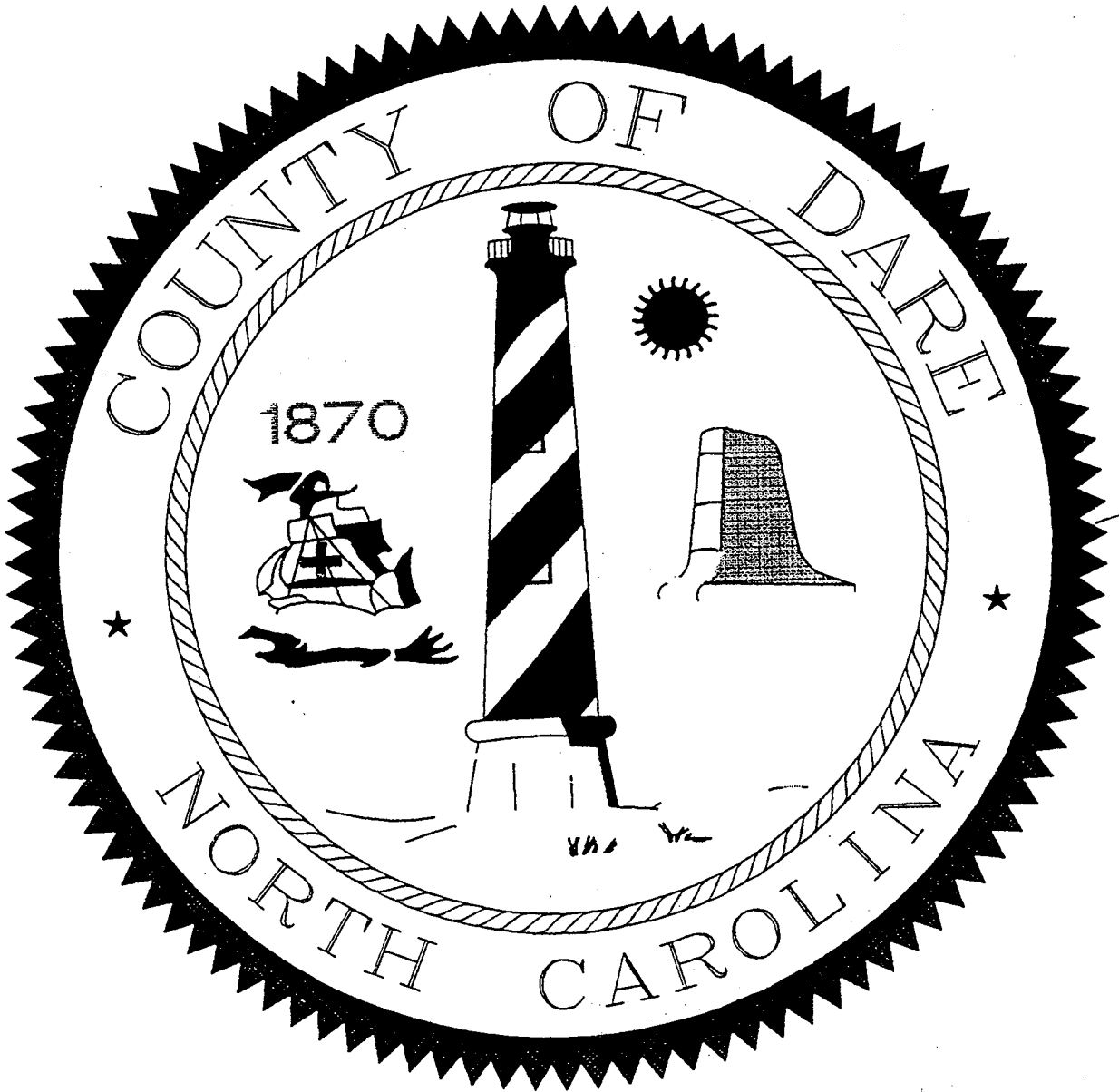
Attachment H
Water Conservation

Attachment I
Land Use Planning

Attached is Dare County's Land Use Plan cover sheet, table of contents, and sections relating to the water system. A copy of the entire document will be provided upon request.

Dare County Land Use Plan Update

July 14 695 3317



DARE COUNTY

LAND USE PLAN

1994 UPDATE

Adopted by the Dare County Board of Commissioners on July 18, 1994
Certified by the North Carolina Coastal Resources Commission on July 29, 1994

The preparation of this document was financed, in part, through a grant provided by the N.C. Coastal Management Program, through funds provided by the Coastal Zone Management Act of 1972, as amended, which is administered by the Office of Ocean and Coastal Resources Management, National Oceanic and Atmospheric Administration.

1994 DARE COUNTY LAND USE PLAN

County Commissioners

Robert V. Owens, Jr., Chairman
Clarence P. Skinner, Vice-Chairman
Douglas W. Langford
Joseph Mac Midgett
Geneva H. Perry
Samuel O. Smith
Robert G. Williams

Planning Board

Elmer R. Midgett, Jr. Chairman
Larry Bray
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Linda Foster
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Technical Assistance on Plan

Dare County Planning Department

Raymond P. Sturza, Dare County Planning Director
Donna V. Creef, Dare County Chief Planner

Public Participation Consultants

Regional Development Institute - ECU, Greenville, NC 27858
Glenn Harbeck Associates, Wilmington, NC 28401

Mapping Consultants

Quible and Associates, Kitty Hawk, NC 27948



COUNTY OF DARE
MANTEO, NORTH CAROLINA 27954

OFFICE OF THE
BOARD OF COMMISSIONERS

ROBERT V. OWENS, JR.
CHAIRMAN

CLARENCE P. SKINNER
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CLERK TO THE BOARD

H. AL COLE, JR.
COUNTY ATTORNEY

RESOLUTION IN SUPPORT OF
DARE COUNTY'S COASTAL VILLAGE ATMOSPHERE

Whereas, Dare County is renown for its abundance of natural resources, unspoiled ocean and soundside beaches, and its small coastal communities all of which attract thousands of visitors and travelers annually and;

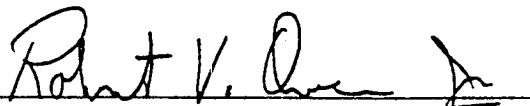
Whereas, there are numerous communities geographically dispersed throughout unincorporated Dare County, each one having its own distinct character but all sharing a common coastal village atmosphere and a sense of place and;

Whereas, these villages have developed their unique coastal identity due to the absence of large scale commercial development and the presence of colorful locally owned small businesses established to meet the needs of local residents and seasonal visitors and;

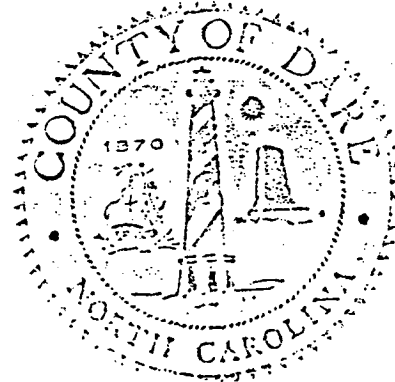
Whereas, the residents of unincorporated Dare County have indicated throughout the public input phase of the 1994 Land Use Plan update a desire to preserve this coastal village atmosphere and;

Whereas, the Dare County Board of Commissioners shares this desire to maintain the coastal village atmosphere of our communities;

NOW THEREFORE BE IT RESOLVED that the County of Dare will strive to preserve our coastal village atmosphere through land use management and the policies and implementation strategies contained in the 1994 Land Use Plan update which are designed to limit large scale commercial development and encourage the continuation of locally owned small businesses.


Robert V. Owens, Jr., Chairman
Dare County Board of Commissioners

SEAL:



DATE: July 18, 1994

LAND OF BEGINNINGS

PRINTED ON RECYCLED PAPER

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1.4 Community Facilities and Services

Over the past two decades, unincorporated Dare County has undergone a transition from sparsely developed coastal villages to seasonal resort enclaves that feature a residential/commercial mix of land use. The demand for infrastructure improvements and public services has increased significantly during this transition period. A discussion of each of these items follows:

1.4.1 Water

The major water supply system for all of Dare County, including the municipalities, is the Dare Regional Water Supply System (DRWSS). Water for the villages of Avon, Buxton, Frisco, and Hatteras on Hatteras Island is supplied by the Cape Hatteras Water Association, a privately-owned and operated utility service. The remaining areas of unincorporated Dare County not supplied water from either of these two agencies rely on private wells for potable water.

The provision of drinking water for the public water supply systems on the northern beaches of Dare County is accomplished by producing water at the Skyco Ion Exchange water plant on Roanoke Island, the reverse osmosis desalination water treatment facility in Kill Devil Hills and the Nags Head managed Fresh Pond surface water facility in Nags Head.

The DRWSS was formed to succeed the Dare Beaches Water Authority as a vehicle to develop an adequate water supply for the overall northern beaches of the County. The DRWSS is not to be confused with the Dare County water system which provides and maintains the water supply system by contracts with the Towns of Southern Shores and Kitty Hawk. The village of Duck and some portions of Roanoke Island are also served by the Dare County water system.

Concerns about financing, and the need for an authority to finance through issuance of revenue bonds, led the North Carolina Local Government Commission to recommend that Dare County be the political entity responsible for development of an adequate water supply for the Dare beaches. The County's involvement began in the early 1970s and led to the development of a groundwater supply on the southern end of Roanoke Island to supplement the only plant in operation at that time, the Fresh Pond surface water treatment plant.

Water delivery by the DRWSS to the municipalities began with the first gallons going to the Town of Manteo on June 20, 1980. Shortly after, in August of 1980, water service to the Towns of Kill Devil Hills and Nags Head began. Service to the customers in unincorporated areas of Roanoke Island began a couple of days later with service to the

Towns of Southern Shores and Kitty Hawk and the village of Duck coming on-line later in November and December of 1980. The initial installation of meters for water service was approximately 1,000 meters. By the end of 1992, a total of 14,411 metered service connections were being served through the main master meters that deliver water to the Towns from the DRWSS.

The average annual daily water use for the DRWSS in 1992 was 3.173 MGD. The maximum monthly average water use was 5.543 MGD in July with a close 5.470 MGD for an average day in August 1992. The minimum's day usage occurs every year during the winter months. The lowest consumer usage month was recorded in February when the average gallonage totaled only 1.697 MGD. The year's lowest consumer water usage day was February 26 when the entire distribution system used no more than 1.128 million gallons. This creates a maximum to minimum water usage ratio of almost 6:1. During peak days in the summer months of 1992, the demand reached as high as 6.583 MGD. Table 1 shows the average monthly water use in MGD for each month.

Table 12 -- Average Monthly Water Use in MGD for 1992

<u>MONTH</u>	<u>WATER USE</u>
January	1.719
February	1.697 Minimum
March	1.975
April	2.827
May	3.316
June	4.286
July	5.543 Maximum
August	5.470
September	3.842
October	2.767
November	2.455
December	1.986

There are 4 major water users who purchase water from the DRWSS and in-turn distribute and maintain their own water systems. Their average daily use is listed below.

Table 13 -- Four Major Wholesale Purchasers for 1992

<u>Name of Water User</u>	<u>Avg. MGD</u>
Kill Devil Hills	1.086
Dare County	1.001
Nags Head	0.787
Manteo	0.178

All groundwater delivered by the DRWSS is produced at either the Skyco plant or the Reverse Osmosis desalination plant in Kill Devil Hills. Nags Head manages the production of water at its Fresh Pond surface water treatment facility which also supplies water for delivery by the DRWSS.

The Skyco plant is located on the southern half of Roanoke Island. It is supplied by a series of 10 permanent wells drilled down to between 200 and 250 feet below the surface into the upper Yorktowne aquifer, pulling water at various screened intervals between 120 feet and 220 feet. The combined 12 hour yield of all wells is 2.722 MGD and the production capacity exceeds 5.0 MGD. The plant was built in 1979 to supply additional water to the then only sources of drinking water for the County's public water supply systems; the Fresh Pond water treatment plants operated by both the Towns of Kill Devil Hills and Nags Head.

The R.O plant is located in Kill Devil Hills on a tract of land known as the Baum tract. It is presently supplied water by a series of 8 wells drilled down to 425 feet below the surface on the same tract of land as the plant. Two additional wells are underway for added supply, with target start up dates around the spring of 1994. The R.O. plant is supplied raw water from a different and unconnected portion of the Yorktowne aquifer that supplies the Skyco plant. The combined 12 hour yield of all wells is 2.592 MGD and production capacity is 3.0 MGD.

The R.O. plant was brought on-line in August 1989 to supply additional water when customer demand approached the upper limits of the production capabilities of the Skyco plant and the Nags Head Fresh Pond plant. Once the Skyco plant came on line, there was little need for the Kill Devil Hills treatment of Fresh Pond water to continue and the plant was dismantled shortly thereafter.

The Fresh Pond surface water treatment facility is located at the western municipal boundaries of the Town limits separating Kill Devil Hills and Nags Head. This 30 acre pond is utilized most often during the peak tourist season in the summer and is the only large surface source of fresh water on the Outer Banks.

Built in 1964 as the first source of fresh water supply to the original water supply systems of Kill Devil Hills and Nags Head, this plant can produce almost 1.5 MGD over a short period of time. Estimates of a long-term, sustained yield of 900,000 gallons per day can be achieved without causing an unacceptable drain on the pond. There is an estimated 106.2 million gallons of fresh water in this pond when full.

Total sustained present maximum production capacity of the three treatment plants supplying water to the DRWSS is 8.9 MGD.

Throughout Dare County, tourism plays a major part in the future in determining water customer demand. The following table lists future population and water demand projections until the year 2020.

Table 14 -- Future Population and Water Demand

<u>Year</u>	<u>County Population</u>	<u>Year-round System Population</u>	<u>% of County Population</u>	<u>Avg. MGD Day Total</u>	<u>Peak MGD</u>
1990	22,746	12,050	52.98%	2.908	6.319
1992	24,680	13,323	53.98%	3.173	6.583
2000	32,416	18,313	56.49%	4.316	8.954
2010	42,142	24,186	57.39%	6.034	12.519
2020	51,851	30,680	59.17%	7.766	16.112

Best estimates point to the fact that an expansion in the production capabilities of the DRWSS will need to be started well in advance of the anticipated increases in demand prior to the year 2000.

Present production and an additional 13 million gallons in storage throughout Dare County's northern beaches and Roanoke Island should be sufficient to handle the peak anticipated demand and fire flow protection until the turn of the century. But, once again, these figures are based on best calculated, estimated customer demand figures as anticipated in 1993, and should be reviewed and re-evaluated annually.

Based on the present views of the withdrawals of water from the wellfield on Roanoke Island, expansions in the production capabilities of the DRWSS will most likely be accomplished with new wells on the beach and not at the Skyco plant.

The reverse osmosis plant in Kill Devil Hills was built with three R.O. units installed and room for the installation of five additional 1.0 MGD reverse osmosis skids for a total plant production capacity of 8.0 MGD when fully expanded. The installation of two wells per each additional R.O. unit installed will be necessary. The anticipated site of these wells is to the south of the present location of the R.O. plant. As stated earlier, the expansion of the wellfield and the production of water must occur prior to customer peak demand reaching 8.9 MGD around the year 2000.

Water for the unincorporated areas of Roanoke Island not serviced by the DRWSS rely on private wells for potable water as does the mainland areas of Dare County.

On Hatteras Island, the villages of Avon, Buxton, Frisco, and Hatteras are serviced by the privately-operated Cape Hatteras Water Association. The CHWA serves an average daily population of 6,900, which varies greatly during the year. Hatteras Island's economy depends on tourism and this accounts for wide fluctuations in population during the winter and summer months.

The Water Association Treatment Plant processes water drawn from 44 shallow wells, located in the Buxton Woods surficial aquifer. The total average recharge on this aquifer is approximately 7.5 MGD and the average daily withdrawal is .698 MGD.

The following table illustrates the withdrawals amounts for each month during 1992. The minimum water use month was February with .368 MGD. The maximum water use month was August, with a daily water use of 1.087 MGD. This is during the peak tourist season and the peak day was August 12, 1992 with a usage of 1.3.10 MGD.

MONTH	WITHDRAWAL
January	.441 mgd
February	.368 mgd
March	.445 mgd
April	.652 mgd
May	.741 mgd
June	.891 mgd
July	1.044 mgd
August	1.087 mgd
September	.819 mgd
November	.606 mgd
December	.432 mgd

In 1992, the CHWA applied for a major CAMA permit from the State of North Carolina to expand their wellfield area. This permit was issued by the Division of Coastal Management but before construction on the new wells could begin, a third party lawsuit was filed by the Southern Environmental Law Center on behalf of the Friends of Hatteras Island, a local environmental group and the project was put on hold. In response to this the CHWA has issued a moratorium on the sale of new water impacts units until the lawsuit is settled. This moratorium, in effect, stopped all new construction unless the property owner had previously purchased water impact units which could be used. The Dare County Board of Commissioners issued a directive in late 1993 which allowed the use of private wells on existing lots in the villages of Avon, Buxton, Frisco, and Hatteras as an interim response to the moratorium situation. Once the legal issue is resolved, the CHWA plans to increase its water production to 2.5 MGD of produced water, which should meet the service area's needs until the year 2000.

The other Hatteras Island villages of Rodanthe, Waves, and Salvo all rely on private wells for potable water. The water in these villages, while safe for drinking, is of poor quality. The County has completed a feasibility study of a reverse osmosis plant to serve these villages and construction plans are being sent out to bid as this Plan is nearing completion. This 1.0 MGD plant is scheduled to be completed by the fall of 1995.

Source: Bob Oreskovich, Dare County Water Superintendent

1.4.2 Wastewater

Publicly-owned wastewater treatment in Dare County is available only from the Town of Manteo, which operates a surface water discharge plant. The Town has recently completed an upgrade that brings the wastewater treatment capacity of this system to 600,000 gallons per day (gpd). The current demand is 375,000 gpd, which leaves a residual capacity of 225,000 gpd. Portions of unincorporated Dare County adjacent to the Town's service area have applied for annexation in order to hook-up with the Town's central wastewater system. Dare County anticipates increased urbanization of those portions of Roanoke Island that have existing infrastructure to accommodate wastewater treatment retrofit.

There are no other publicly-owned sewage treatment plants in Dare County and little prospect of any being developed in the immediate future. Environmental constraints pertaining to surface water discharge and a lack of suitable soils for land application combine to create a disincentive for central wastewater treatment.

On-site septic tank and drainfield systems serve as the predominant method of wastewater treatment. In situations where the intensity of land use or the limitations of soils preclude a traditional septic tank system, alternative methods of wastewater treatment have been used. These include package treatment plants, low pressure systems, composting toilets, and incinerating toilets. Constructed wetland disposal has been examined as an alternative in locations where constraints are severe, but this alternative has yet to be accepted for purposes other than experimentation.

1.4.3 Transportation

Most travel within Dare County occurs on two arterial routes. For either north-south or east-west travel, motorists in Dare County are limited to the choice of possible travel routes. The arterial roadway system in the County is shown on the accompanying "Key Roadways" map and consists of the following major links:

2.3 Economic and Community Development

The previous sections of this Plan have addressed natural resources and the policies Dare County will use to manage and preserve its natural resource base. Equally important are those policies that pertain to economic and community development. Every community must provide certain infrastructure improvements and other services in order to achieve its mission of protecting public health and welfare and providing for orderly development. This section will touch on a number of issues related to economic and community development in unincorporated Dare County.

2.3.1 Provision of Services

2.3.1 (a) Water

Providing for a reliable source of drinking water is one of the primary infrastructure tasks faced by any local government. Drinking water is a basic human need. Although Dare County is surrounded by water, water suitable for consumption is not so readily available. A detailed narrative about Dare County's water supply can be found in Section 1.4.1 of this Plan. There are two main water production operations in Dare County, one publicly owned, the Dare County Regional Water Supply System, and one privately owned, the Cape Hatteras Water Association. Residents of unincorporated Dare County who are not served by one of these two systems must rely on private wells for drinking water. As this Plan is being developed, preliminary engineering studies are being completed as part of an effort to establish a central water supply system for Rodanthe, Waves, and Salvo. Upon the completion of this system, the only remaining portions of Dare County not served by central water will be the unincorporated areas of Roanoke Island and the Mainland.

POLICY 2.3.1 (a)

DARE COUNTY RECOGNIZES GROUNDWATER RESOURCES AS AN ESSENTIAL ELEMENT OF THE DRINKING WATER SUPPLY. THE MANAGEMENT OF GROUNDWATER RESOURCES AND THEIR PROTECTION IS A PRIORITY ISSUE IN DARE COUNTY.

Implementation Strategy

1. The approval of development proposals, such as subdivisions and other large water consuming projects, will be linked to the availability of drinking water.

Attachment J
Official Copy of Water Rate Structure and Average Monthly
Residential User Charge Calculations

Stumpy Point does not have a water system. Stumpy Point is a small residential community located on the mainland of Dare County. If requested, the average monthly residential user calculations for the beach can be supplied but it would not be representative of the Stumpy Point community. It is estimated the average monthly water usage will be approximately 4,000 gallons.

Water rates for the Stumpy Point water system have not been established and will depend on the amount of grant received to construct the project. The rate structure for the beach can be supplied upon request. It is the intent of the Stumpy Point water system to keep the water rates at the High Unit Cost Grant threshold for Dare County of \$22.54/month.

Attachment K
Projected Project Revenues for High Unit Cost Grant
Applications

The projected project revenues are based on the Dare County High Unit Cost threshold of \$22.54.

The total project cost is \$1,442,000. Without grant, the annual debt service based on a 20-year loan at 5% would be \$115,648.40. The annual O & M cost is \$12,650.00. Based on 96 users, the average monthly water bill would be \$111.38.

**PROJECTED PROJECT REVENUES
FOR
HIGH-UNIT COST GRANT APPLICATIONS**

Provide the following user charge fee information projected after completion of construction and at start-up of the new facilities. Information for both water and wastewater must be provided for high-unit cost grant applications whether the project is for water or wastewater.

A) WATER

RESIDENTIAL

<u>96</u>	users @	<u>4,000</u>	gallons @	<u>\$ 22.54</u>	per user =	<u>\$ 2,163.84</u>	monthly
_____	users @	_____	gallons @	\$ _____	per user =	\$ _____	monthly
_____	users @	_____	gallons @	\$ _____	per user =	\$ _____	monthly
_____	users @	_____	gallons @	\$ _____	per user =	\$ _____	monthly
_____	users @	_____	gallons @	\$ _____	per user =	\$ _____	monthly
_____	users @	_____	gallons @	\$ _____	per user =	\$ _____	monthly

Total Residential 96 users \$ 2,163.84 monthly [A]

Average Residential User Fee = \$ 2,163.84 monthly • 96 # of users = \$ 22.54 /user

OTHER USERS (COMMERCIAL, INDUSTRIAL, INSTITUTIONAL)

_____ users \$ _____ monthly [B]

Total Annual Revenue = \$ 2,163.84 monthly x 12 = \$ 25,966.08
[A + B]

B) WASTEWATER

RESIDENTIAL

_____	users @	_____	gallons @	\$ _____	per user =	\$ _____	monthly
_____	users @	_____	gallons @	\$ _____	per user =	\$ _____	monthly
_____	users @	_____	gallons @	\$ _____	per user =	\$ _____	monthly
_____	users @	_____	gallons @	\$ _____	per user =	\$ _____	monthly
_____	users @	_____	gallons @	\$ _____	per user =	\$ _____	monthly
_____	users @	_____	gallons @	\$ _____	per user =	\$ _____	monthly

Total Residential _____ users \$ _____ monthly [A]

Average Residential User Fee = \$ _____ monthly • _____ # of users = \$ _____ /user

OTHER USERS (COMMERCIAL, INDUSTRIAL, INSTITUTIONAL)

_____ users \$ _____ monthly [B]

Total Annual Revenue = \$ _____ monthly x 12 = \$ _____
[A + B]

C) Total Water and Wastewater Revenue \$ 25,966.08 Total Avg. Residential User Fee \$ 22.54 /month

Attachment L
1997 Water Supply Plan

Dare County 1997 Local Water Supply Plan

including

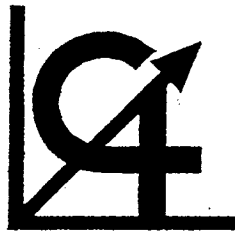
Dare County – Reverse Osmosis Plant

Dare County – Skyco Plant

Dare County – Cape Hatteras Water System

Dare County – Rodanthe-Waves-Salvo Reverse Osmosis Plant

October 1998



CAVANAUGH & ASSOCIATES, P. A.

*We provide superior client service and environmentally sound
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Dare Regional Water System

1997 Local Water Supply Plan

The Dare Regional Water Supply System serves the Outer Banks of Dare County. In 1992, this system consisted of the Reverse Osmosis Plant located in Kill Devil Hills, and the Skyco Water Plant located on Roanoke Island. Dare County operated these two plants to serve Kitty Hawk, Southern Shores and Duck, as well as to sell water to the Town of Kill Devil Hills, the Town of Nags Head, and the Town of Manteo. The Public Water Supply System Identification Number (PWSID) for both plants is 04-28-030.

Since the 1992 Local Water Supply Plan, there have been several changes to the system. The first change was the addition of the Dare County Rodanthe-Waves-Salvo (RWS) Water System. (PWSID 04-28-035). This plant is owned and operated by Dare County. It is a reverse osmosis plant with a capacity of one million gallons per day.

Another change to the system was the takeover of the Cape Hatteras Water Association Water System (PWSID 04-28-025). Dare County now owns and operates that system as well. In 1992 the Cape Hatteras Water Association operated a plant that had approximately 45 wells. All 45 of these wells have been abandoned and new wells are being utilized at this time. Currently, there is a reverse osmosis plant being designed to serve the Cape Hatteras area.

Concerning the Dare County distribution system, there has been one major change. Dare County now directly serves Colington Island instead of Kill Devil Hills serving the island.

Enclosed are the 1997 Local Water Supply Plans/Water Supply Reports for the Dare Regional Water Supply System. This includes one Water Supply System Report that covers the Reverse Osmosis Plant and the Skyco Plant, one Water Supply System Report for Cape Hatteras water system, and one Water Supply System Report for the Rodanthe-Waves-Salvo Reverse Osmosis Plant.

WHITE PAPERS & ARTICLES WRITTEN ABOUT OUR PLANTS

WHITE PAPERS

All of these papers are available at the RO KDH Plant

Dare Beaches Water Supply: Fresh Pond To Reverse Osmosis

Written by Joseph E. Hardee, PE
Black & Veatch Engineering

Presented at the Joint Conference of the NC
AWWA and the NC Water Pollution Control
Association
November 12-15, 1989.

Utility's Viewpoint in Membrane Filtration Facility Design

Written by Robert W. Oreskovich, Director
Dare County Water System

Presented at the AWWA 1992 Annual Conference
on Engineering & Operations
June 18-22, 1992

Energy Management By Innovative RO Plant Operator

Written by Robert W. Oreskovich, Director
Dare County Water System

Presented at the Membrane Technology Conference
February 23-26, 1997

Challenges of Locating a Water Treatment Plant on a Barrier Island

Written by Robert W. Oreskovich, Director
Dare County Water System

Presented at the 1996 Annual AWWA Conference
Pinehurst, North Carolina

MAGAZINE & NEWSPAPER ARTICLES

New desalting plant on N. Carolina coast is largest outside of Florida

US Water News
(Water Quality) February 1990 issue

Dare County Regional Desalination Water Facility

Written by William P. Bizzell, PE and Craig A. Perry, PE - Black & Veatch Engineering
the Professional Engineer (November-December 1990 issue)

How Fast?

Written by Bob Oreskovich, Director of Dare County Water System
Florida Water Resources Journal (July 1991 issue)

SCADA - A System Supervisor at Work

Written by Bob Oreskovich and Bob Crutchfield
NC AWWA Journal

Is desalination coming of age?

HACH News & Notes (July 1991 issue)

Dare-ing to desalinate: from salt water to drinking water

Southern City - NC League of Municipalities
(September 1991 issue)

Regional Water Cost Reviews

IDA (International Desalination Association)
NEWS (Jan/Feb 98 issue)

WATER AVAILABILITY STUDIES

All of these studies are available at the RO KDH Water Facility

CAPE HATTERAS

Groundwater Resources of Cape Hatteras Area
Ralph Heath - Consulting Engineer - September
1988

Report of Outpost Wells of Frisco Wellfield
Ralph Heath - Consulting Engineer - June 1990

Brackish Water Exploration Test Wells
Boyle Engineering - June 1995

**Report Related to Modification of the Frisco
Well Field**
Ralph Heath - Consulting Engineer - August 1995

Reverse Osmosis Test Well Construction
Missimer International - August 1995

Future Water Supply Study
Ian C. Watson - Boyle Engineering - September
1995

**Environmental Assessment for Expansion of
Cape Hatteras Well Field**
Hobbs, Upchurch & Associates - October 1995

Pilot Plant Testing of the Shallow Well Aquifer
Boyle Engineering - November 1995

**Pilot Plant Study of the Shallow Ground Water
Aquifer**
Boyle Engineering - November 1995

**Pilot Plant Study of the Shallow Ground Water
Aquifer**
Boyle Engineering & Hobbs, Upchurch - March
1997

RO (KDH)

**Report on Water Supply & Treatment
Alternatives for Dare County, North Carolina**
Black & Veatch - January 1987

**Modeling of Pumping Induced Ground Water
Quality Changes at the Dare County, NC Well
Field - KDH Site**
Missimer & Associates - October 1987

Dare Beaches Water Supply - Fresh Pond to Reverse Osmosis
Joe Hardee - Black & Veatch - November 1989

Investigation and Predictive Modeling of Water Quality Changes Within the Yorktown Aquifer - Dare County
Missimer & Associates - April 1992

Water System Improvements - Supply & Treatment
Black & Veatch - September 1992

Engineering Study and Financial Forecast for Expansion of and Improvements to the Dare County Water System
Black & Veatch - May 1994

Report on the Construction and Testing of the Dare County Water Production Department - Reverse Osmosis Wells #9 & #10
ViroGroup, Inc. - August 1994

Evaluation of Potential Train Capacity Increase
Boyle Engineering - April 1995

SKYCO

Potential Ground Water Supplies for Roanoke Island and Dare County Beaches
Ground Water Division Office of Water and Air Resources of North Carolina - 1972

Regional Water System and Regional Waste Water Collection & Treatment
Henry Von Oesen - September 1973

Wanchese Water Study
Quible & Associates - October 1989

Roanoke Island Ground Water Monitoring Report
NC DEHNR Division of GroundWater Resources - May 1994

Roanoke Island Ground Water Monitoring Report
NC DEHNR Division of GroundWater Resources -

May 1995

**Roanoke Island Ground Water Monitoring
Report**

NC DEHNR Division of Ground Water Resources -
June 1997

RO RWS

**Water Supply & Treatment Alternatives for the
Villages of Rodanthe, Waves & Salvo
Black & Veatch - April 1982**

**Hatteras Island Water System Feasibility
Analysis
Malcolm-Pirnie - August 1990**

**Potable Water Feasibility Report for Rodanthe,
Waves & Salvo, Dare County
Black & Veatch - June 1993**

**Rodanthe, Waves & Salvo Water System
Environmental Assessment
Black & Veatch - January 1994**

**Report on the Construction and Testing of the
Dare County Water Production Department RO
Well Field in
Rodanthe, NC
May 1995**



Dare County Water Home

LOCAL WATER SUPPLY PLAN
 Part 1: Water Supply System Report for Calendar Year 1997

Completed By: Cavanaugh & Associates, P.A. Date: May 19, 1998

SECTION 1: GENERAL INFORMATION

1-A. Water System: Dare County Regional Water System 1-B. PWS Identification #: 04-28-030
 1-C. River Sub-Basin(s): Albemarle
 1-D. County(s): Dare
 1-E. Contact Person: Nancy Loomis (RO) Donny Ross (Skyco.) Title: Plant Supt.
 1-F. Mailing Address: 600 Mustian Sireet City: Kill Devil Hills State: NC Zip Code: 27948
 1-G. Phone: 252/473-1101 1-H. Fax: 252/441-2239 1-I. E-mail: Water@co.dare.nc.us or skyco@co.dare.nc.us
 1-J. Type of Ownership (Check One): Municipality County Authority District Non-Profit Association For-Profit Business
 State Other Skyco
 Post Office Box 1000
 Manteo, North Carolina 27954

SECTION 2: WATER USE INFORMATION

2-A. Population Served in 1997: Year-Round 17617
 Seasonal (if applicable) 125-150000 Months June - September
 2-B. Total Water Use for 1997 including all purchased water: 1649.465 Million Gallons (MG)
 2-C. Average Annual Daily Water Use in 1997: 4.519 Million Gallons per Day (MGD)
 2-D. List 1997 Average Annual Daily Water Use by Type in Million Gallons per Day (MGD):

Type of Use	Metered Connections		Non-Metered Connections		Total
	Number	Average Use (MGD)	Number	Estimated Average Use (MGD)	
(1) Residential	6940	0.989	-	-	0.989
(2) Commercial	364	0.274	-	-	0.274
(3) Industrial	-	-	-	-	-
(4) Institutional	7304	-	-	-	-
(5) Sales to other Systems					2.184
(6) Backwash - 0.24					0.660
(7) Subtotal (sum (1) thru (6))					4.107

(8) Average Annual Daily Water Use [Item 2-C] 4.519
 (9) Unaccounted-for water [(8)-(7)] 0.412

2-E List the Average Daily and Maximum Day Water Use by Month for 1997 in Million Gallons per Day (MGD):

	Average Daily Use	Maximum Daily Use	Average Daily Use	Maximum Daily Use	Average Daily Use	Maximum Daily Use
Jan	2.779	4.843	4.570	6.453	Sep	6.862
Feb	2.548	3.946	6.108	9.032	Oct	6.791
Mar	3.221	4.588	7.456	8.499	Nov	5.256
Apr	3.854	6.120	7.302	8.211	Dec	5.593

2-F. List the system's Largest Water Users and their Average Annual Daily Use in Million Gallons per Day (MGD) for 1997: (include sales to other systems)

Water User	Average Daily Use	Water User	Average Daily Use
Skyco Water Plant	0.022	Ziff Property	0.006
J. M. Kane Co.	0.009	Davis, J.A.	0.005
W. E. Hotel LLC	0.008	Hulvey, Tom	0.004
Dare County Detention Ctr.	0.007	TNT Services	0.004
Sanderling Inn & Rest In	0.006	Dogwood Trailer Park	0.003

2-G. WATER SALES TO OTHER SYSTEMS

List all systems supplied water through existing interconnections (regular and emergency).
Mark the locations of connections on the System Map.

Water System	PWSID	2		3		4	5*
		Average Daily Amount	# of Days	MGD	Expiration Date		
Kill Devil Hills	04-28-015	1.027	365	3.0	06/30/36	12" - 24"	R
Nags Head	04-28-010	0.959	365	3.5	06/30/36	12" - 24"	R
Manteo	04-28-020	0.198	365	0.7	2020	12" - 24"	R
						12"	R

*NOTE Column 5 R=Regular Use, E=Emergency Use

2-H. What is the Total Amount of Sales Contracts for Regular Use? 7.2 MGD

SECTION 3: WATER SUPPLY SOURCES

3-A. SURFACE WATER List surface water source information. Mark and label locations of intakes on the System Map.

1 Name of Stream and/or Reservoir	2 Drainage Area Square Miles	3 Is Withdrawal Metered?	4 Sub-Basin	5 Average Daily Withdrawal	6 Maximum Daily Withdrawal	7* Available Supply	8* Facility Limiting Daily Output		9 Useable On-Stream Raw Water Supply Storage Million Gallons	10 R or E
							Capacity (MGD)	Type of Facility		
Not Applicable										

*NOTES Column 7 Supply Qualifiers: C=Contract Amount, SY20=20 year Safe Yield, SY50=50 year Safe Yield, F=20% of 7Q10 or other instream flow requirement, T=Treatment plant capacity.
 Column 8 Type of Facility: R=Raw water pumps, T=Treatment facilities, M=Transmission Main, D=Distribution system, O=Other (Specify)
 Column 10 R=Regular Use, E=Emergency Use

3-B. What is the Total Surface Water Supply available for Regular Use? _____ MGD

3-C. Does this system have off-stream raw water supply storage? No Yes Useable Capacity _____ Million Gallons

3-D. WATER PURCHASES FROM OTHER WATER SYSTEMS
 List all systems that can supply water to this system through existing interconnections (regular and emergency). Mark the locations of the connections on the System Map.

1 Water Supplied by: Water System	2 Average Daily Amount		3 Contract Amount		4 Pipe Size(s) Inches	5* R or E
	MGD	# of Days	MGD	Expiration Date		
Nags Head	0.745	115	1.0	06/30/36	12"	R
Kill Devil Hills	0	0	N/A	N/A	12"	R
						E

*NOTE Column 5 R=Regular Use, E=Emergency Use

3-E. What is the Total Amount of Purchase Contracts available for Regular Use? 1.0 _____ MGD (Do not include emergency use connections in total)

3-J. WATER TREATMENT PLANTS List all WTPs, including any under construction, as of 12/31/97. Mark and label locations on the System Map.

Water Treatment Plant Name	Permitted Capacity MGD	Source(s)
Dare County RO Plant	3	Mid Yorktown Aquifer
Skyco Water Plant	5	Upper Yorktown Aquifer

3-K. What is the system's finished water storage capacity? 9.7 Million Gallons

SECTION 4: WASTEWATER INFORMATION

4-A. List Average Daily Wastewater Discharges by Month for 1997 in Million Gallons per Day (MGD)

	Average Daily Discharge	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Average Daily Discharge
Jan	0.483				0.598			0.888			0.778
Feb	0.415				0.606			0.843			0.617
Mar	0.528				0.729			0.828			0.607

4-B. List all Wastewater Discharge and/or Land Application permits held by the system. Mark and label points of discharge and land application sites on the System Map.

1 NPDES Or Land Application Permit Number	2 Permitted Capacity Dec. 31, 1997 MGD	3 Design Capacity MGD	4 Average Annual Daily Discharge MGD	5 Name of Receiving Stream	6 Sub-Basin
NC0035670	0.050	0.050	0.024	Unnamed Tributary	Pasquotank (Albemarle)
NC0070157	N/A	N/A	0.636	# 001 Unnamed Tributary	Atlantic Ocean
				# 002 Atlantic Ocean	

4-C. List all Wastewater Discharge Interconnections with other systems. Mark and Label the locations of connections on the System Map.

1 Wastewater Discharger		2 Wastewater Receiver		3 Average Daily Amount Discharged or Received		4 Contract Maximum
Name	PWSID	Name	PWSID	MGD	# of Days	MGD
Not-Applicable						

4-D. Number of sewer service connections: 0

4-E. Number of water service connections with septic systems: 7304

4-F. Are there plans to build or expand wastewater treatment facilities in the next 10 years? No Yes, Please explain.

SECTION 5: WATER CONSERVATION and DEMAND MANAGEMENT ACTIVITIES

5-A. What is the estimated total miles of distribution system lines? 172 Miles

5-B. List the primary types and sizes of distribution lines:

Asbestos Cement (AC)	Cast Iron (CI)	Ductile Iron (DI)	Galvanized Iron (GI)	Polyvinyl Chloride (PVC)	Other
6" to 16" 2%	-	12" to 24" 4%	-	2" to 12" 94%	-

5-C. Were any lines replaced in 1997? No Yes Linear feet

5-D. Were any new water mains added in 1997? No Yes 6800 Linear feet

5-E. Does this system have a program to work or flush hydrants? No Yes How often? Twice yearly

Does this system have a valve exercise program? No Yes How often? _____

ITEM NAME

Dare County Regional Water System

PWSID

04-28-030

- 5-G. Does this system have a cross-connection control program? No Yes
- 5-H. Has water pressure been inadequate in any part of the system? No Yes Please explain. _____
- 5-I. Does this system have a leak detection program? No Yes What type of equipment or methods are used? _____
- Geo-phones _____
- 5-J. Has water use ever been restricted since 1992? No Yes Please explain. _____
- 5-K. Does this system have a water conservation plan? No Yes Please attach a copy. _____
- 5-L. Did this system distribute water conservation information in 1997? No Yes
- 5-M. Are there any local requirements on plumbing fixture water use which are stricter than the NC State Building Code? No Yes Please explain. _____
- 5-N. Does this system have a program to encourage replacement or retrofit of older, higher water-use plumbing fixtures? No Yes
- 5-O. Does this system have a water shortage or drought response plan? No Yes Please attach a copy. _____
- 5-P. Is raw water metered? No Yes
- 5-Q. Is finished water output metered? No Yes
- 5-R. Do you have a meter replacement program? No Yes
- 5-S. How many meters were replaced in 1997 190 meters
- 5-T. How old are the oldest meters in the system? 12 years
- 5-U. What type of rate structure is used? Decreasing block Flat Rate Increasing Block Seasonally Adjusted Other
- 5-V. Are there meters for outdoor water use, such as irrigation, which are not billed for sewer services? No Yes # of meters _____
- 5-W. Does this system use reclaimed water or plan to use it within the next five years? No Yes # of connections _____ MGD _____

SECTION 6: SYSTEM MAP

Review, correct, and return the enclosed system map Check Plot to show the present boundaries of the water distribution system service area, points of intake and discharge, wells, water and wastewater treatment facilities, and water and wastewater interconnections with other systems. Also, show any proposed points of intake or discharge, wells, water and wastewater treatment facilities, water and wastewater interconnections, and future service area extensions. Use symbols shown on the attached map.

Completed By: Cavanaugh & Associates Date: May 19, 1998
 WATER SYSTEM: Dare County Regional WS PWSID: 04-28-030

SECTION 7: WATER DEMAND PROJECTIONS

7-A. Population to Be Served	1997	2000	2010	2020
Year-Round	7764	8464	10538	12600
Seasonal (if applicable)*	150000	163515	203586	243438

*Please list the months of seasonal demand: June - September

7-B. Projected Average Daily Service Area Demand in Million Gallons per Day (MGD). (Does not include sales to other systems)

	1997 (Table 2-D)	2000	2010	2020
(1) Residential	0.989	1.078	1.342	1.605
(2) Commercial	0.274	0.301	0.413	0.567
(3) Industrial	-	-	-	-
(4) Institutional	-	-	-	-
(5) Backwash	0.660	0.660	0.660	0.660
(6) Unaccounted-for water	0.412	0.412	0.412	0.412
(7) Service Area Demand [sum(1) thru (6)]	2.335	2.451	2.827	3.244

7-C. Is non-residential water use expected to change significantly through 2020 from current levels of use? No Yes

If yes, please explain: _____

7-D. FUTURE SUPPLIES List new sources or facilities to be added and mark locations on the System Map.

1	2	3	4	5*	
Source or Facility Name	PWSID	Source Type: Surface, Ground, or Purchase	Additional Supply MGD	Year On-line	R or E
Stumpy Point WS	Unknown	ground	0.500	unk	R
(A new system to serve Stumpy Point)					

*NOTE: R=Regular Use, E=Emergency Use

7-E. What is the Total Amount of Future Supplies available for Regular Use? 0.500 MGD

7-F. FUTURE SALES CONTRACTS List new sales to be made to other systems.

1	2	3	4*
Water Supplied to:	Contract Amount and Duration	Pipe Size(s) Inches	R or E
System No.	Year End		
Not Applicable			

*NOTE: R=Regular Use, E=Emergency Use

7-G. What is the Total Amount of Future Sales Contracts for Regular Use? _____ MGD

SYSTEM NAME Dare County Regional Water System PWSID 04-28-030

SECTION 8: FUTURE WATER SUPPLY NEEDS

Local governments should maintain adequate water supplies to ensure that average daily water demands do not exceed 80% of the available supply. Completion of the following table will demonstrate whether existing supplies are adequate to satisfy this requirement and when additional water supply will be needed.

8-A. AVERAGE DAILY DEMAND AS PERCENT OF SUPPLY

<i>Available Supply, MGD</i>	1997	2000	2010	2020
(1) Existing Surface Water Supply (Item 3-B)	N/A	N/A	N/A	N/A
(2) Existing Ground Water Supply (Item 3-G)	14.576	14.576	14.576	14.576
(3) Existing Purchase Contracts (Item 3-E)	1.000	1.000	1.000	1.000
(4) Future Supplies (Item 7-E)	N/A	N/A	N/A	N/A
(5) Total Available Supply [sum (1) thru (4)]	15.576	15.576	15.576	15.576
<i>Average Daily Demand, MGD</i>				
(6) Service Area Demand (Item 7-B, Line 7)	2.335	2.451	2.827	3.244
(7) Sales Contracts (Item 2-H)	7.200	7.200	7.200	7.200
(8) Future Sales Contracts (Item 7-G)	N/A	N/A	N/A	N/A
(9) Total Average Daily Demand [sum (6) thru (8)]	9.535	9.651	10.028	10.444
(10) Demand as Percent of Supply = [(9) ÷ (5)] x 100	61%	62%	64%	67%
(11) Additional Supply Needed to Maintain 80%, MGD = [(9) ÷ 0.80] - (5)	-3.657	-3.512	-3.041	-2.521

System Notes: _____

8-B. Does Line 10 above indicate that demand will exceed 80% of available supply before the year 2020? No Yes
 If yes, you are requested to attach a specific plan that should include the following:

- (1) Plans for obtaining additional water supply before demand exceeds 80% of available supply. The sooner the additional supply will be needed, the more specific your plans need to be.
- (2) A demand management program to ensure efficient use of your available water supply (for example, conducting water audits at least annually to closely monitor water use; targeting large water customers for increased efficiency; modifying water rate structures; identifying and reducing the amount of leaks and unaccounted for water; and reusing reclaimed water for non-potable uses).
- (3) Restrictive measures to control demand if the additional supply is not available when demand exceeds 80% of available supply, including:
 - Placing a moratorium on additional water connections until the additional supply is available.
 - Amending or developing your water shortage response ordinance to trigger mandatory water conservation as water demand approaches the available supply.

8-C. Are peak day demands expected to exceed the water treatment plant capacity by 2010? No Yes
If yes, what are your plans for increasing water treatment capacity?

8-D. Does this system have an interconnection with another system capable of providing water in an emergency? No Yes
If not, what are your plans for interconnecting (or please explain why an interconnection is not feasible or not necessary).

8-E. Has this system participated in regional water supply or water use planning? No Yes Please describe.

Dare County Regional Water System was formed as a regional system serving Dare County, Nags Head and Kill Devil Hills.
The system also serves Manteo, Rodanthe Waves Salvo, and the Cape Hatteras area.

8-F. List the major water supply reports or studies used for planning.

See attached list

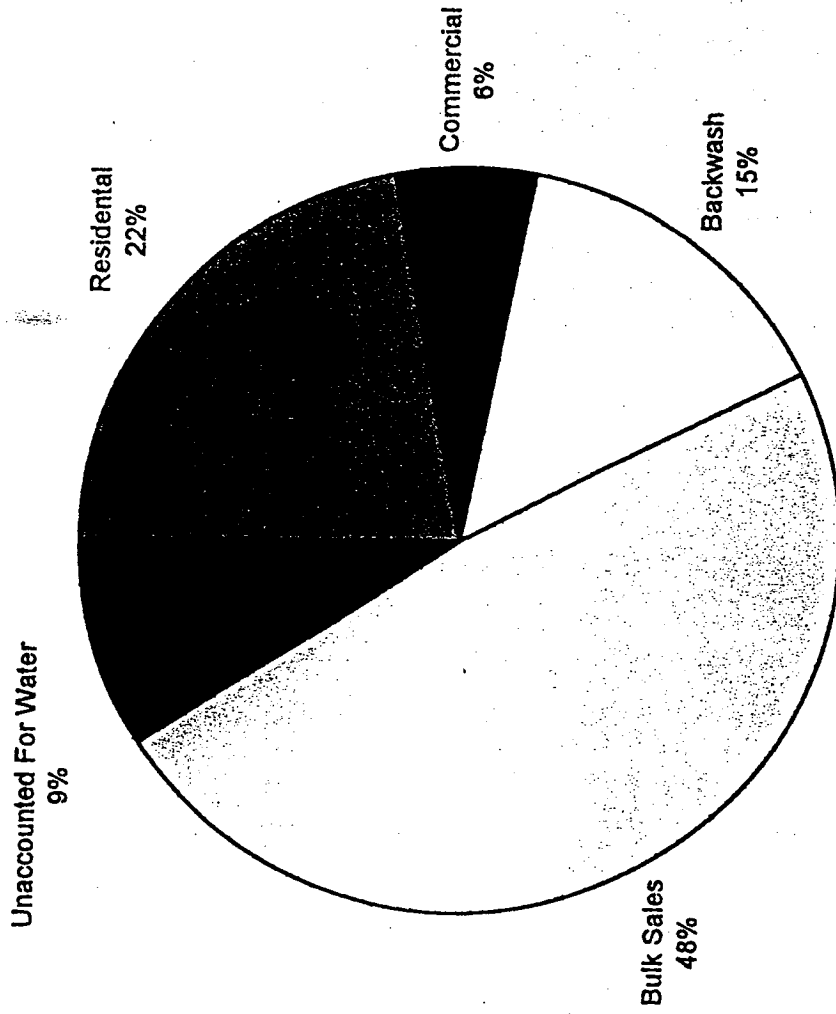
Also currently doing a hydrology study in conjunction with the development of the Stumpy Point system.

SECTION 9: TECHNICAL ASSISTANCE NEEDS

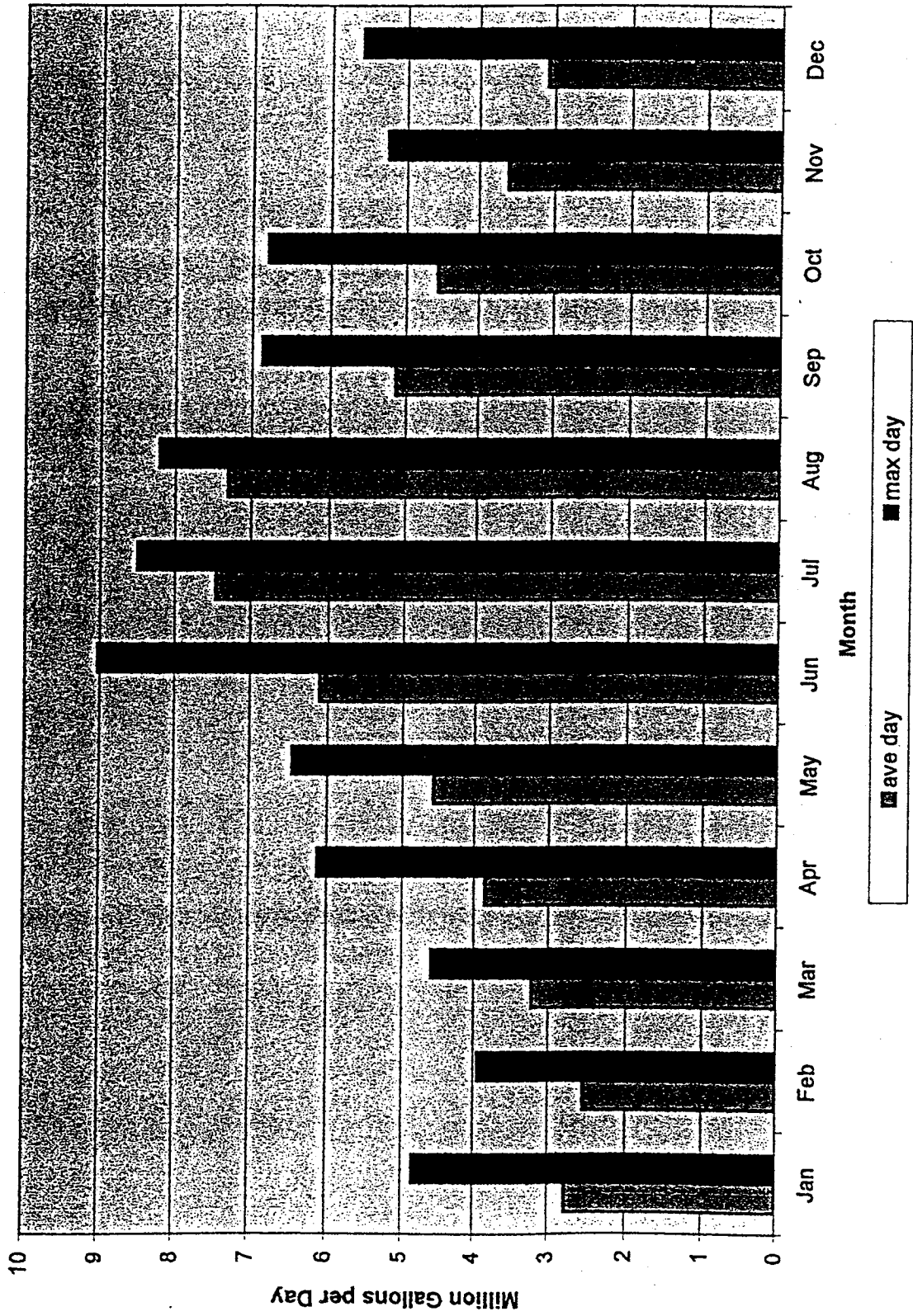
Is technical assistance needed:

- 9-A. to develop a local water supply plan? No Yes
- 9-B. with a leak detection program? No Yes
- 9-C. with a demand management or water conservation program? No Yes
- 9-D. with a water shortage response program? No Yes
- 9-E. to identify alternative or future water supply sources? No Yes
- 9-F. with a capacity development plan? No Yes
- 9-G. with a wellhead or source water protection program? No Yes
- 9-H. with water system compliance or operational problems? No Yes
- 9-I. with Consumer Confidence Reports? No Yes

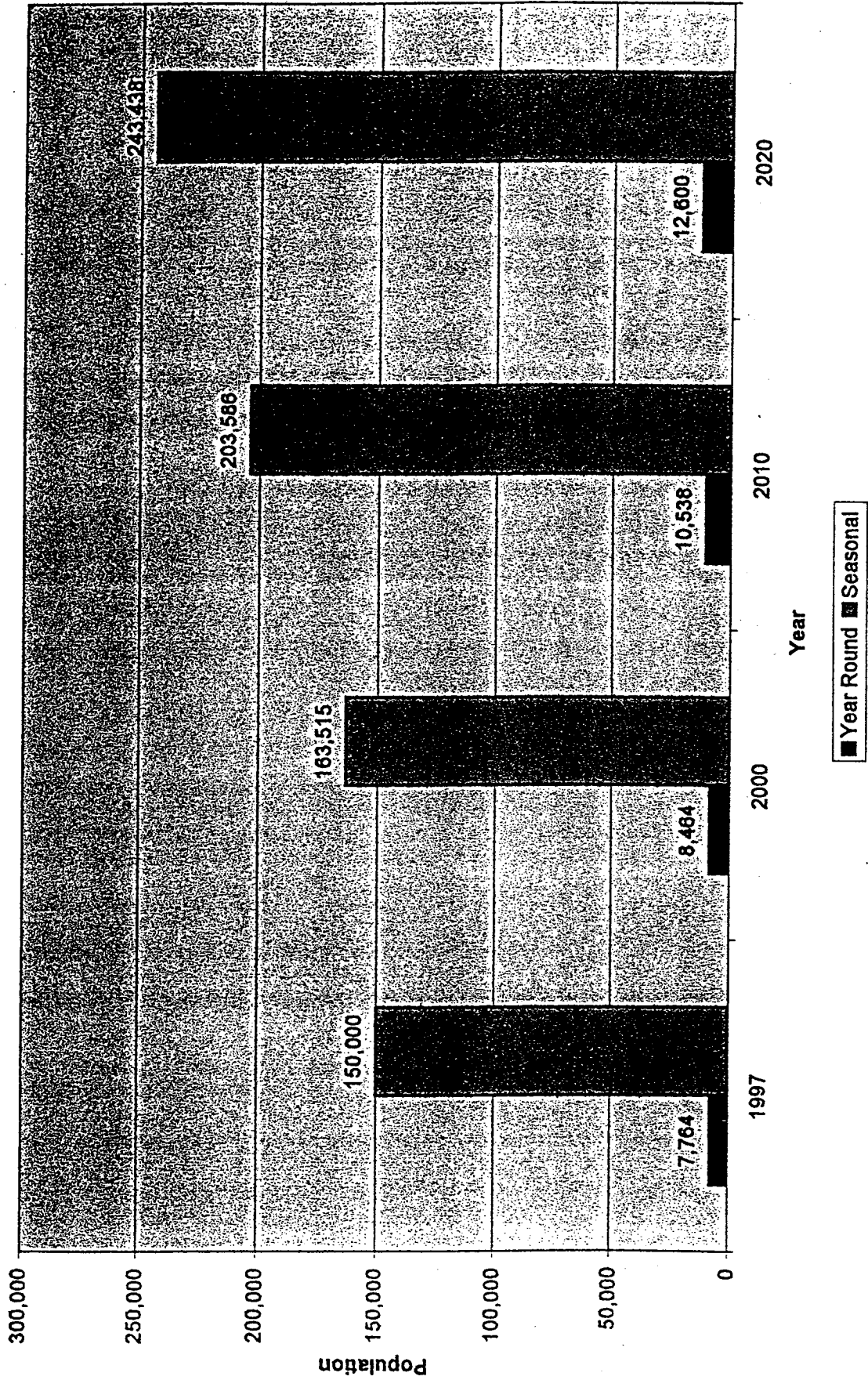
Average Daily Use by Type



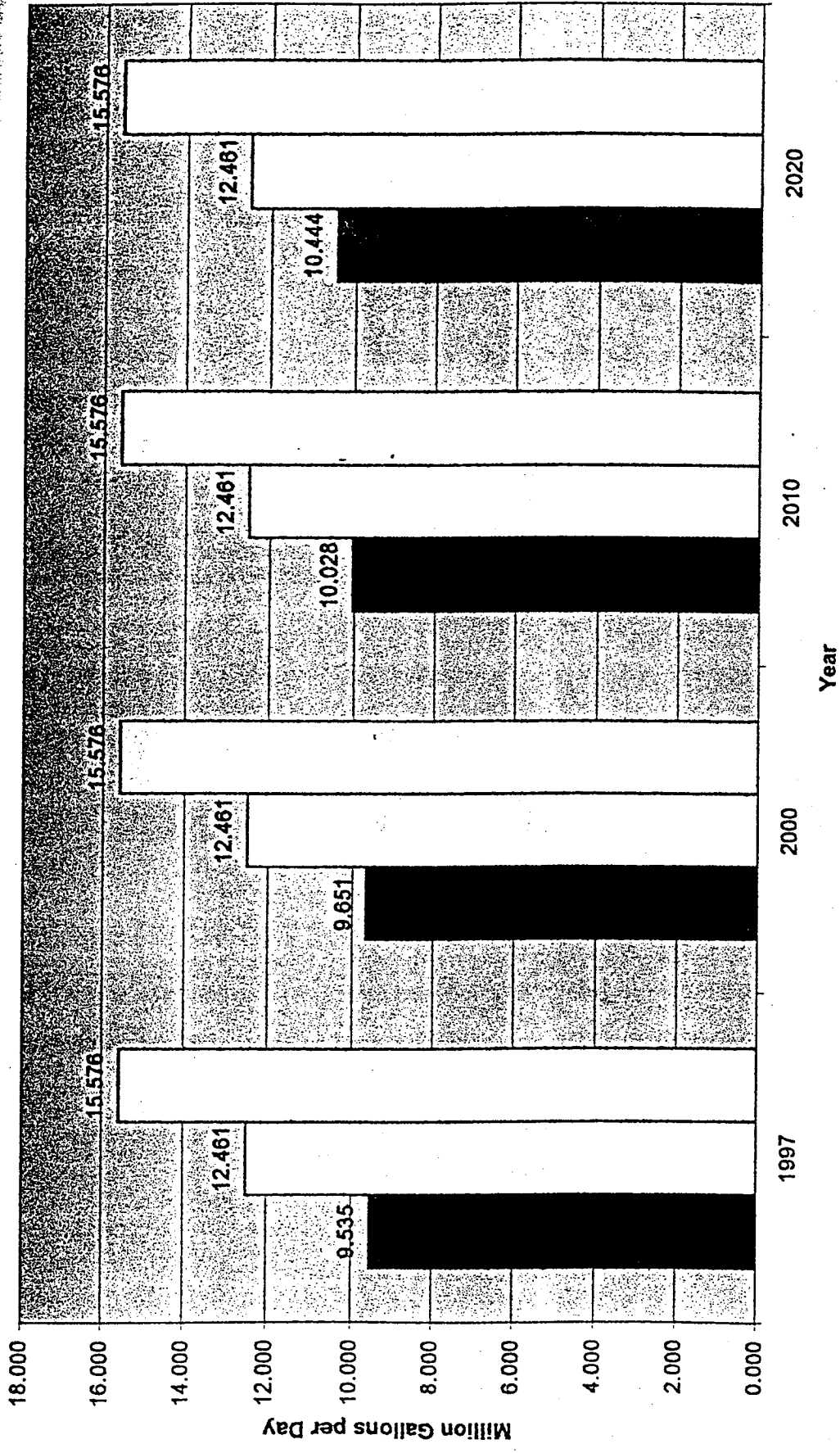
Monthly Use



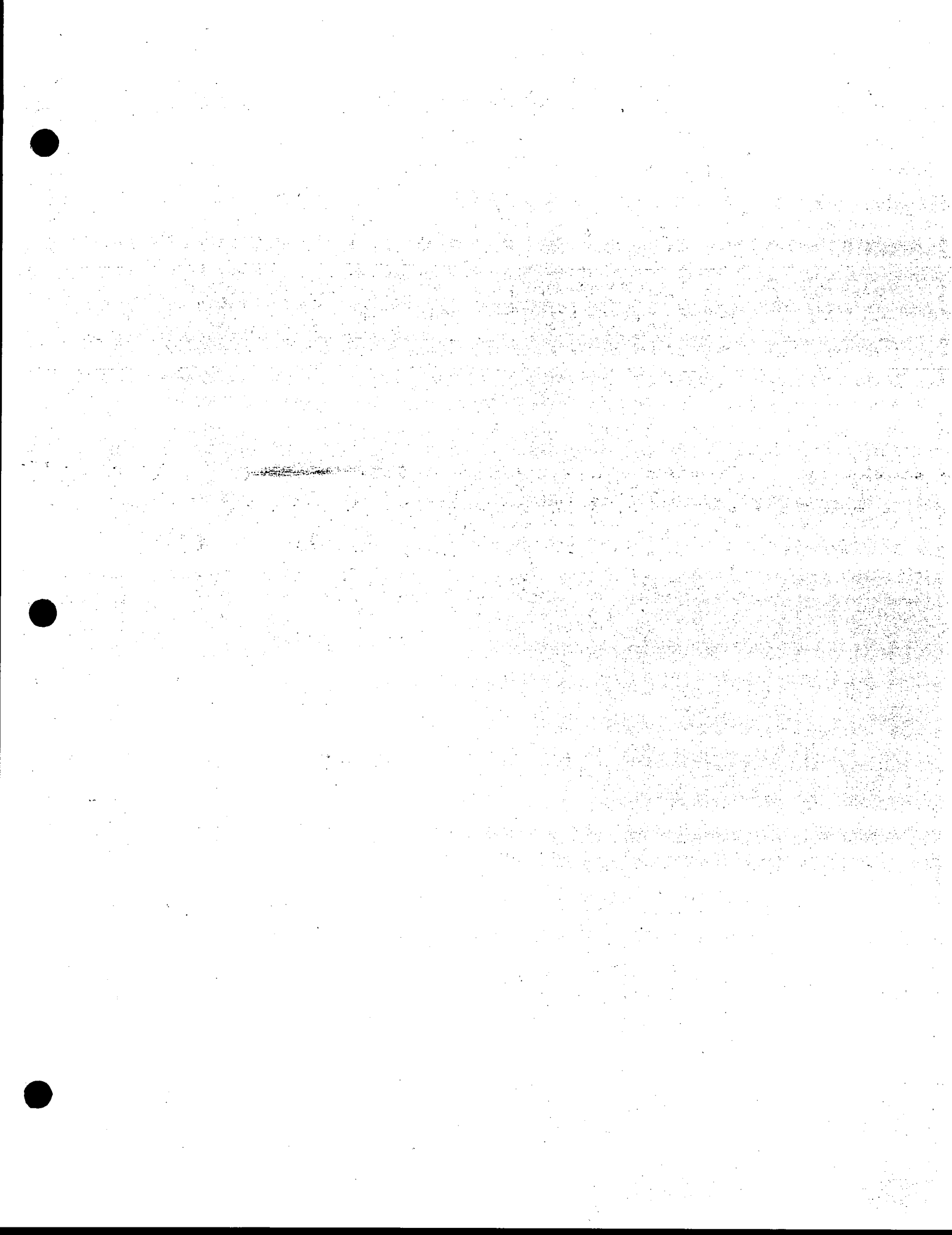
Population Projections



Water Supply & Demand Projections



Total Average Demand
 80% of Supply
 Total Available Supply



LOCAL WATER SUPPLY PLAN
Part 1: Water Supply System Report for Calendar Year 1997

Completed By: Cavanaugh & Associates, P.A. Date: May 19, 1998

SECTION 1: GENERAL INFORMATION

1-A. Water System: Dare County Cape Hatteras 1-B. PWS Identification #: 04-28-025
 1-C. River Sub-Basin(s): Albemarle
 1-D. County(s): Dare
 1-E. Contact Person: Ed Silver Title: Superintendent
 1-F. Mailing Address: P.O. Box 578 City: Buxton State: NC Zip Code: 27920
 1-G. Phone: 252/995-4136 1-H. Fax: 252/995-5049 1-I. E-mail: _____
 1-J. Type of Ownership (Check One): County Authority District Non-Profit Association For-Profit Business
 Municipal State Other

SECTION 2: WATER USE INFORMATION

2-A. Population Served in 1997: Year-Round 7037
 Seasonal (if applicable) 25,000 Months May - September
 2-B. Total Water Use for 1997 including all purchased water: 277.16 Million Gallons (MG)
 2-C. Average Annual Daily Water Use in 1997: 0.759 Million Gallons per Day (MGD)
 2-D. List 1997 Average Annual Daily Water Use by Type in Million Gallons per Day (MGD):

Type of Use	Metered Connections		Non-Metered Connections		Total
	Number	Average Use (MGD)	Number	Estimated Average Use (MGD)	
(1) Residential	2851	0.345	-	-	0.344
(2) Commercial	241	0.097	-	-	0.097
(3) Industrial	-	-	-	-	-
(4) Institutional	7	0.002	-	-	0.002
(5) Sales to other Systems					-
Regan (6) Backwash					0.192
(7) Subtotal [sum (1) thru (6)]					0.635
(8) Average Annual Daily Water Use [Item 2-C]					0.759
(9) Unaccounted-for water [(8)-(7)]					0.124

SECTION 3: WATER SUPPLY SOURCES

3-A. SURFACE WATER List surface water source information. Mark and label locations of intakes on the System Map.

1 Name of Stream and/or Reservoir	2 Drainage Area Square Miles	3 Is Withdrawal Metered? Y/N	4 Sub-Basin		5 Average Daily Withdrawal		6 Maximum Daily Withdrawal		7* Available Supply		8* Facility Limiting Daily Output		9 Useable On-Stream Raw Water Supply Storage Million Gallons	10 R Or E
			MGD	# of Days	MGD	Qualifier	MGD	MGD	Capacity (MGD)	Type of Facility				

*NOTES Column 7 Supply Qualifiers: C=Contract Amount, SY20=20 year Safe Yield, SY50=50 year Safe Yield, Q10 or other instream flow requirement, T=Treatment plant capacity.
 Column 8 Type of Facility: R=Raw water pumps, T=Treatment facilities, M=Transmission Main, O=Other (Specify)
 Column 10 R=Regular Use, E=Emergency Use

3-B. What is the Total Surface Water Supply available for Regular Use? _____ MGD

3-C. Does this system have off-stream raw water supply storage? Yes No Useable Capacity _____ Million Gallons

3-D. WATER PURCHASES FROM OTHER WATER SYSTEMS
 List terms that can supply water to this system through existing interconnections (regular and emergency).
 List locations of the connections on the System Map.

1 Water System	2 Average Daily Amount		3 Contract Amount		4 Pipe Size(s) Inches	5* R or E
	MGD	# of Days	MGD	Expiration Date		

*NOTE Column 5 R=Regular Use, E=Emergency Use

3-E. What is the Total Amount of Purchase Contracts available for Regular Use? _____ MGD (Do not include emergency use connections in total)

3-J. WATER TREATMENT PLANTS List all WTPs, including any under construction, as of 12/31/97. Mark and label locations on the System Map.

Water Treatment Plant Name	Permitted Capacity MGD	Source(s)
Cape Hatteras Water	2.0	Wells

3-K. What is the system's finished water storage capacity? 0.900 Million Gallons

SECTION 4: WASTEWATER INFORMATION

4-A. List Average Daily Wastewater Discharges by Month for 1997 in Million Gallons per Day (MGD)

	Average Daily Discharge	Apr	May	Jun	Average Daily Discharge	Jul	Aug	Sep	Average Daily Discharge	Oct	Nov	Dec	Average Daily Discharge
Jan	0.044				0.070				0.122				0.071
Feb	0.040				0.072				0.129				0.064
Mar	0.058				0.100				0.070				0.052

4-B. List all Wastewater Discharge and/or Land Application permits held by the system. Mark and label points of discharge and land application sites on the System Map.

1 NPDES Or Land Application Permit Number	2 Permitted Capacity Dec. 31, 1997 MGD	3 Design Capacity MGD	4 Average Annual Daily Discharge MGD	5 Name of Receiving Stream	6 Sub-Basin
NC0033103	0.100 - 1.0	0.120	0.074	Peter's Ditch	Albemarle
NC0085707	0.100 - 1.0	0.600	N/A	Pamlico Sound	Albemarle

4-C. List all Wastewater Discharge Interconnections with other systems. Mark and Label the locations of connections on the System Map.

1 Wastewater Discharger		2 Wastewater Receiver		3 Average Daily Amount Discharged or Received		4 Contract Maximum
Name	PWSID	Name	PWSID	MGD	# of Days	MGD
Not Applicable						

- 4-D. Number of sewer service connections: 0
- 4-E. Number of water service connections with septic systems: 3099
- 4-F. Are there plans to build or expand wastewater treatment facilities in the next 10 years? No Yes Please explain.
 There is a new NPDES permit for the planned RO plant as shown in the previous section.

SECTION 5: WATER CONSERVATION and DEMAND MANAGEMENT ACTIVITIES

5-A. What is the estimated total miles of distribution system lines? 155 Miles

5-B. List the primary types and sizes of distribution lines:

Size Range	Asbestos Cement (AC)	Cast Iron (CI)	Ductile Iron (DI)	Galvanized Iron (GI)	Polyvinyl Chloride (PVC)	Other
6" & 8"	-	-	-	-	2" - 12"	-
Estimated % of lines	30%	-	-	-	70%	-

- 5-C. Were any lines replaced in 1997? No Yes _____ Linear feet
- 5-D. Were any new water mains added in 1997? No Yes _____ Linear feet
- 5-E. Does this system have a program to work or flush hydrants? No Yes How often? Twice a year
- 5-F. Does this system have a valve exercise program? No Yes How often? Yearly

5-G. Does this system have a cross-connection control program? No Yes

5-H. Has water pressure been inadequate in any part of the system? No Yes Please explain. _____

5-I. Does this system have a leak detection program? No Yes What type of equipment or methods are used? _____

Geo-phones _____

5-J. Has water use ever been restricted since 1992? No Yes Please explain. _____

5-K. Does this system have a water conservation plan? No Yes Please attach a copy. _____

5-L. Did this system distribute water conservation information in 1997? No Yes

5-M. Are there any local requirements on plumbing fixture water use which are stricter than the NC State Building Code? No Yes Please explain. _____

5-N. Does this system have a program to encourage replacement or retrofit of older, higher water-use plumbing fixtures? No Yes

5-O. Does this system have a water shortage or drought response plan? No Yes Please attach a copy. _____

5-P. Is raw water metered? No Yes

5-Q. Is finished water output metered? No Yes

5-R. Do you have a meter replacement program? No Yes

5-S. How many meters were replaced in 1997? 30 meters

5-T. How old are the oldest meters in the system? 25 years

5-U. What type of rate structure is used? Decreasing block Flat Rate Increasing Block Seasonally Adjusted Other

5-V. Are there meters for outdoor water use, such as irrigation, which are not billed for sewer services? No Yes # of meters _____

5-W. Does this system use reclaimed water or plan to use it within the next five years? No Yes # of connections _____ MGD _____

SECTION 6: SYSTEM MAP

Review, correct, and return the enclosed system map Check Plot to show the present boundaries of the water distribution system service area, points of intake and discharge, wells, water and wastewater treatment facilities, and water and wastewater interconnections with other systems. Also, show any proposed points of intake or discharge, wells, water and wastewater treatment facilities, water and wastewater interconnections, and future service area extensions. Use symbols shown on the attached map.

Completed By: Cavanaugh & Associates Date: May 19, 1998
 WATER SYSTEM: Dare Co. Cape Hatteras PWSID: 04-28-025

SECTION 7: WATER DEMAND PROJECTIONS

7-A. Population to Be Served	1997	2000	2010	2020
Year-Round	7037	8851	11020	13177
Seasonal (if applicable)*	25000	31444	39149	46813

*Please list the months of seasonal demand: _____

7-B. Projected Average Daily Service Area Demand in Million Gallons per Day (MGD). (Does not include sales to other systems)

	1997 (Table 2-D)	2000	2010	2020
(1) Residential	0.345	0.434	0.540	0.646
(2) Commercial	0.097	0.115	0.206	0.369
(3) Industrial	-	-	-	-
(4) Institutional	0.002	0.002	0.002	0.002
(5) Backwash	0.192	0.192	0.192	0.192
(6) Unaccounted-for water	0.124	0.124	0.124	0.124
(7) Service Area Demand [sum(1) thru (6)]	0.759	0.867	1.065	1.333

7-C. Is non-residential water use expected to change significantly through 2020 from current levels of use? No Yes

If yes, please explain: There will be growth with more water available from the new RO plant

7-D. FUTURE SUPPLIES List new sources or facilities to be added and mark locations on the System Map.

1	2	3	4	5*
Source or Facility Name	Source Type: Surface, Ground, or Purchase	Additional Supply MGD	Year On-line	R or E
Dare Co - Cape Hatteras RO Plant	ground	1.4	2000	R

*NOTE: R=Regular Use, E=Emergency Use

7-E. What is the Total Amount of Future Supplies available for Regular Use? 4 MGD

7-F. FUTURE SALES CONTRACTS List new sales to be made to other systems.

1	2	3	4*
Water Supplied to:	Contract Amount and Duration	Pipe Size(s) Inches	R or E
System	Year Beg. Year End		
Not Applicable			

*NOTE: R=Regular Use, E=Emergency Use

7-G. What is the Total Amount of Future Sales Contracts for Regular Use? _____ MGD

SECTION 8: FUTURE WATER SUPPLY NEEDS

Local governments should maintain adequate water supplies to ensure that average daily water demands do not exceed 80% of the available supply. Completion of the following table will demonstrate whether existing supplies are adequate to satisfy this requirement and when additional water supply will be needed.

8-A. AVERAGE DAILY DEMAND AS PERCENT OF SUPPLY

<i>Available Supply, MGD</i>	1997	2000	2010	2020
(1) Existing Surface Water Supply (Item 3-B)	-	-	-	-
(2) Existing Ground Water Supply (Item 3-G)	0.550	0.55	0.55	0.55
(3) Existing Purchase Contracts (Item 3-E)	-	-	-	-
(4) Future Supplies (Item 7-E)	-	1.40	1.40	1.40
(5) Total Available Supply [sum (1) thru (4)]	0.55	1.95	1.95	1.95
<i>Average Daily Demand, MGD</i>				
(6) Service Area Demand (Item 7-B, Line 7)	0.759	0.867	1.065	1.333
(7) Sales Contracts (Item 2-H)	-	-	-	-
(8) Future Sales Contracts (Item 7-G)	-	-	-	-
(9) Total Average Daily Demand [sum (6) thru (8)]	0.759	0.867	1.065	1.333
(10) Demand as Percent of Supply = [(9) ÷ (5)] x 100	138%	44%	55%	68%
(11) Additional Supply Needed to Maintain 80%, MGD = [(9) x 0.80] - (5)	0.40	-0.87	-0.62	-0.29

System Notes: _____

8-B. Does Line 10 above indicate that demand will exceed 80% of available supply before the year 2020? ● No ○ Yes
 If yes, you are requested to attach a specific plan that should include the following:

- (1) Plans for obtaining additional water supply before demand exceeds 80% of available supply. The sooner the additional supply will be needed, the more specific your plans need to be.
- (2) A demand management program to ensure efficient use of your available water supply (for example, conducting water audits at least annually to closely monitor water use; targeting large water customers for increased efficiency; modifying water rate structures; identifying and reducing the amount of leaks and unaccounted for water; and reusing reclaimed water for non-potable uses).
- (3) Restrictive measures to control demand if the additional supply is not available when demand exceeds 80% of available supply, including:
 - Placing a moratorium on additional water connections until the additional supply is available.
 - Amending or developing your water shortage response ordinance to trigger mandatory water conservation as water demand approaches the available supply.

8-C. Are peak day demands expected to exceed the water treatment plant capacity by 2010? No Yes
 If yes, what are your plans for increasing water treatment capacity?

8-D. Does this system have an interconnection with another system capable of providing water in an emergency? No Yes
 If not, what are your plans for interconnecting (or please explain why an interconnection is not feasible or not necessary).

The system is to remote to connect to another system.

8-E. Has this system participated in regional water supply or water use planning? No Yes Please describe.

Dare County Regional Water System Annual Report

Part of the Dare County Regional Water System

8-F. List the major water supply reports or studies used for planning.

Preliminary Design Report- RO Water Treatment Plant

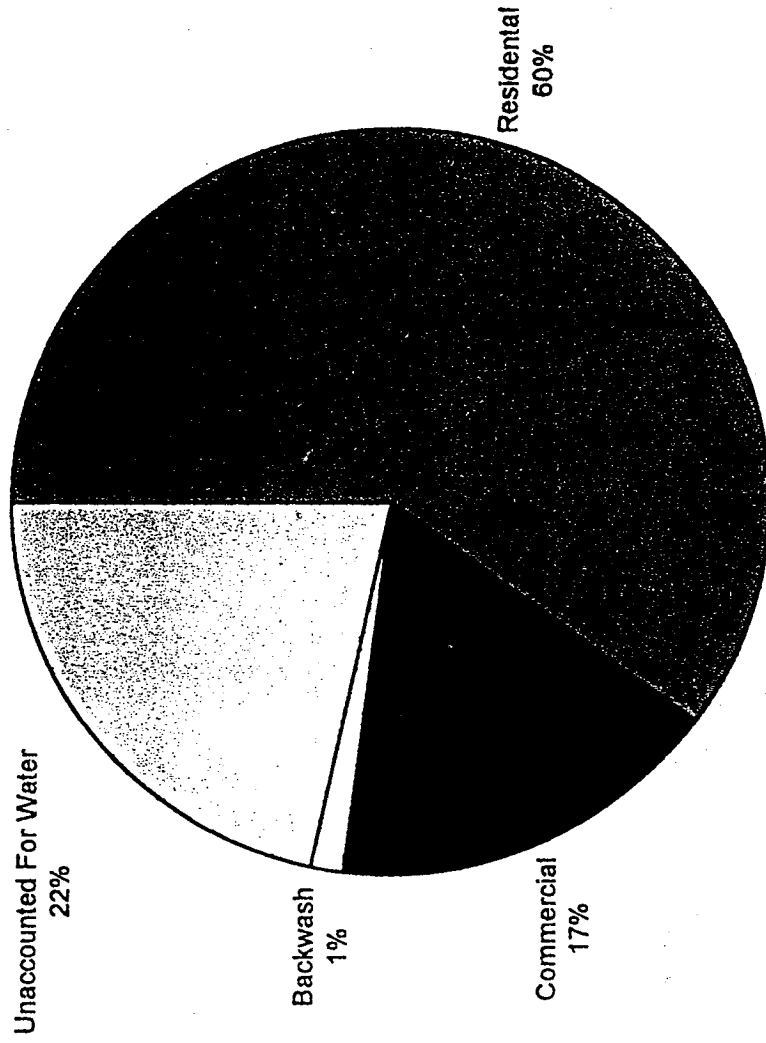
Missimer International - RO well field study

SECTION 9: TECHNICAL ASSISTANCE NEEDS

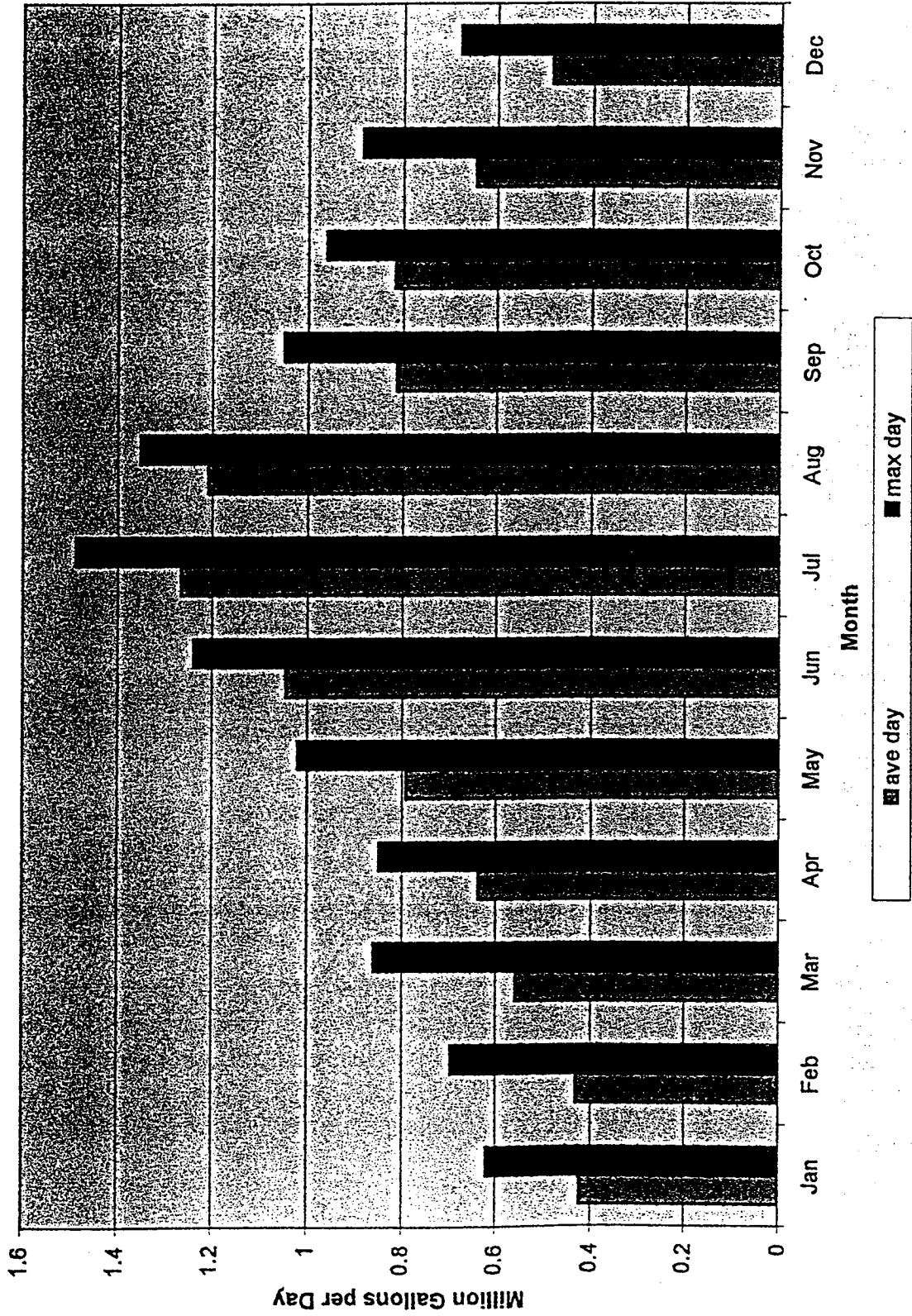
Is technical assistance needed:

- 9-A. to develop a local water supply plan? No Yes
- 9-B. with a leak detection program? No Yes
- 9-C. with a demand management or water conservation program? No Yes
- 9-D. with a water shortage response program? No Yes
- 9-E. to identify alternative or future water supply sources? No Yes
- 9-F. with a capacity development plan? No Yes
- 9-G. with a wellhead or source water protection program? No Yes
- 9-H. with water system compliance or operational problems? No Yes
- 9-I. with Consumer Confidence Reports? No Yes

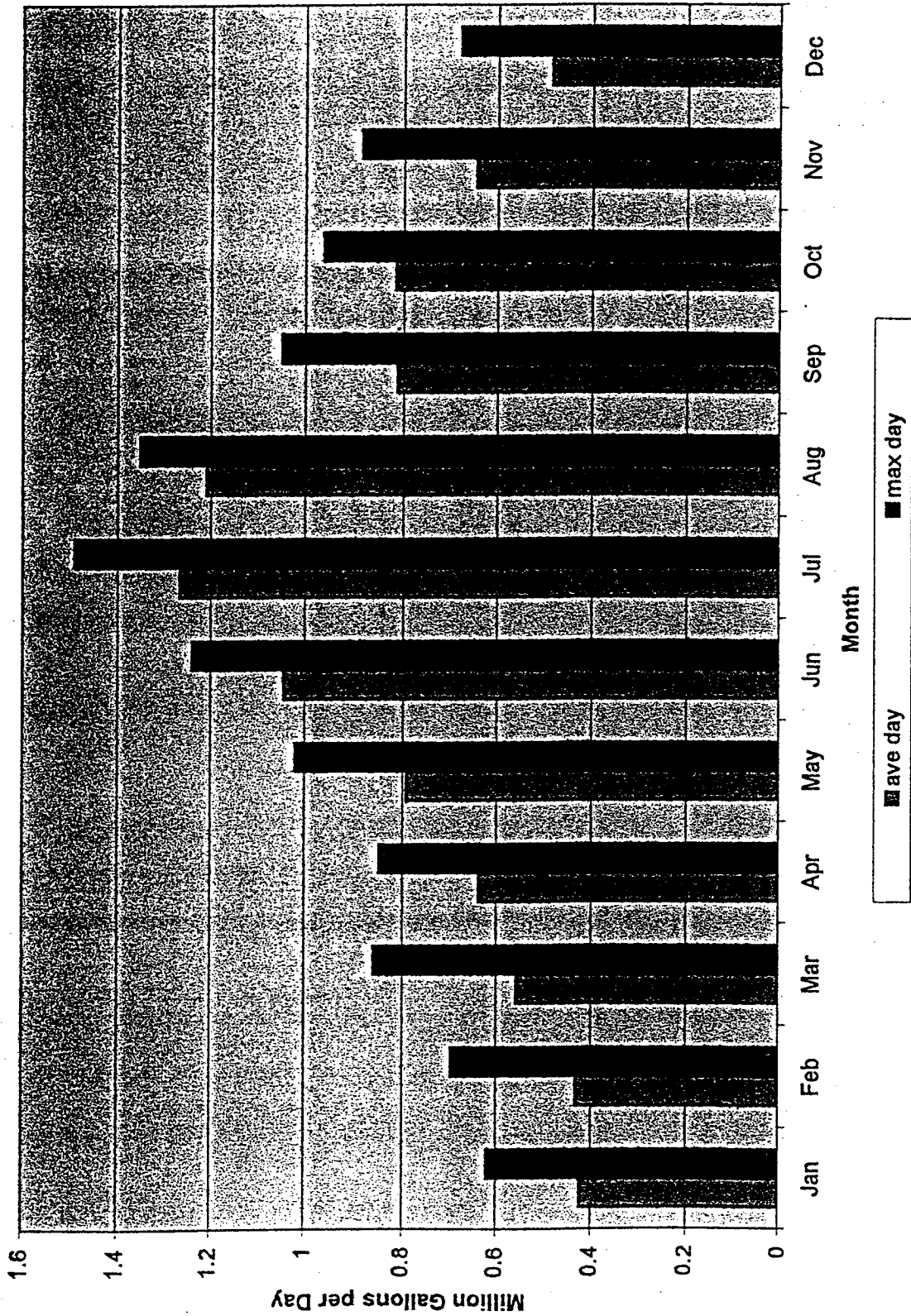
Average Daily Use by Type



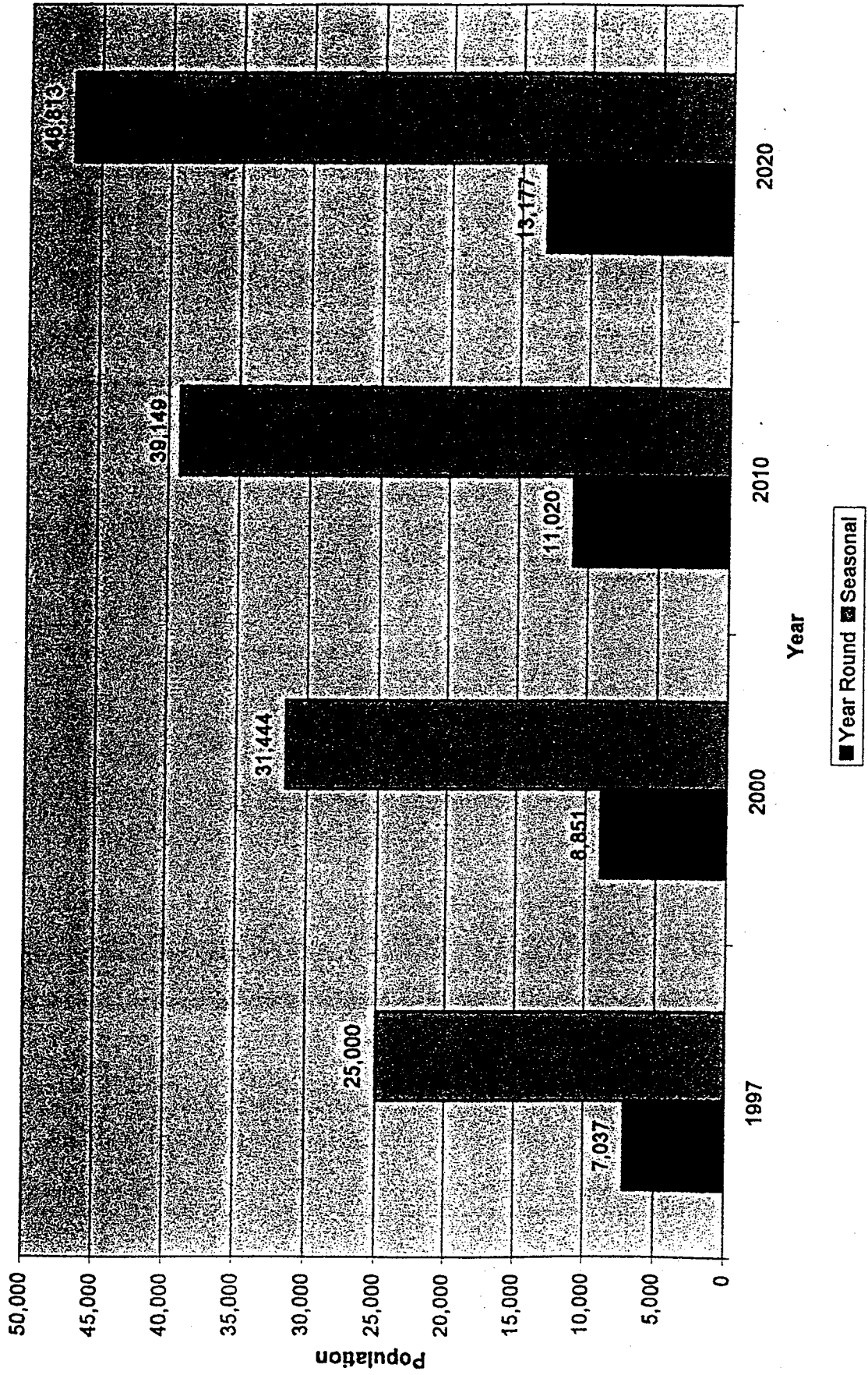
Monthly Use



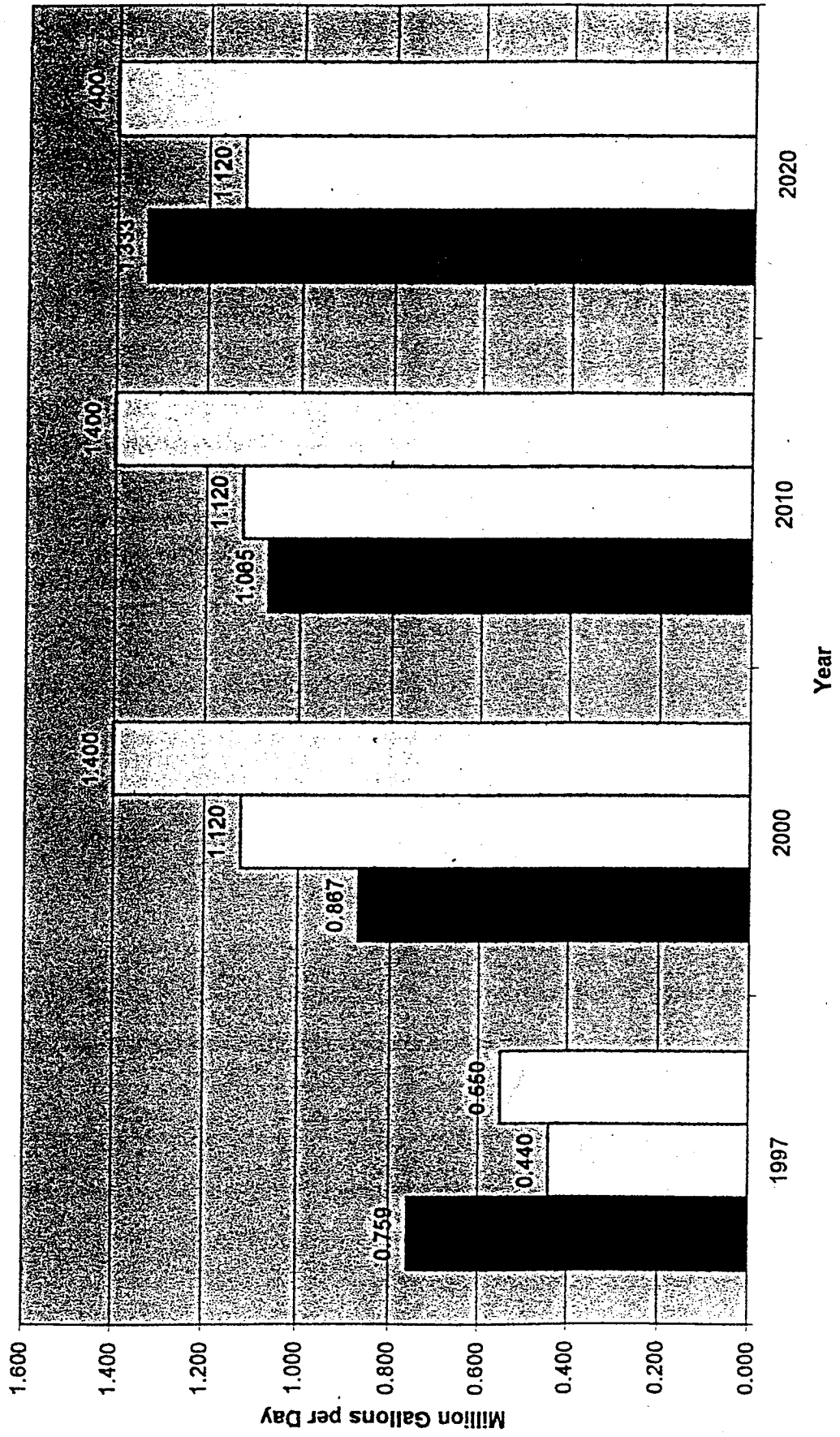
Monthly Use



Population Projections



Water Supply & Demand Projections



Total Average Demand
 80% of Supply
 Total Available Supply

LOCAL WATER SUPPLY PLAN
Part 1: Water Supply System Report for Calendar Year 1997

Completed By: Cavanaugh & Associates, P.A. Date: May 19, 1998

SECTION 1: GENERAL INFORMATION

1-A. Water System: Dare County RWS Water System 1-B. PWS Identification #: 04-28-035
 1-C. River Sub-Basin(s): Albemarle
 1-D. County(s): Dare
 1-E. Contact Person: Robert Crutchfield Title: RWS Plant Superintendent
 1-F. Mailing Address: P.O. Box 500 City: Rodanthe State: NC Zip Code: 27968
252/987-1111 1-H. Fax: 252/987-1110 1-I. E-mail: Crutchfield@co.dare.nc.us
 1-J. Type of Ownership (Check One): Municipality County Authority District Non-Profit Association For-Profit Business
 State Federal Other

SECTION 2: WATER USE INFORMATION

2-A. Population Served in 1997: Year-Round 2085 (per DENR permit to operate a public water system)
 Seasonal (if applicable) 20000 Months June - September
 2-B. Total Water Use for 1997 including all purchased water: 67,396 Million Gallons (MG)
 2-C. Average Annual Daily Water Use in 1997: 0.185 Million Gallons per Day (MGD)
 2-D. List 1997 Average Annual Daily Water Use by Type in Million Gallons per Day (MGD):

Type of Use	Metered Connections		Non-Metered Connections		Total Average Use (MGD)
	Number	Average Use (MGD)	Number	Estimated Average Use (MGD)	
(1) Residential	752	0.091			0.091
(2) Commercial	26	0.033			0.033
(3) Industrial					
(4) Institutional					
(5) Sales to other Systems					0
(6) Backwash					0.043
(7) Subtotal [sum (1) thru (6)]					0.167
(8) Average Annual Daily Water Use [Item 2-C]					0.185
(9) Unaccounted-for water [(8)-(7)]					0.018

3-J. WATER TREATMENT PLANTS List all WTPs, including any under construction, as of 12/31/97. Mark and label locations on the System Map.

Water Treatment Plant Name	Permitted Capacity MGD	Source(s)
RWS Water Plant	1.0	Mid Yorktown Aquifer

3-K. What is the system's finished water storage capacity? 1.2 Million Gallons

SECTION 4: WASTEWATER INFORMATION

4-A. List Average Daily Wastewater Discharges by Month for 1997 in Million Gallons per Day (MGD)

	Average Daily Discharge	Average Daily Discharge	Average Daily Discharge	Average Daily Discharge	Average Daily Discharge
Jan	0.020	Apr	0.029	Jul	0.092
Feb	0.014	May	0.042	Aug	0.087
Mar	0.025	Jun	0.070	Sep	0.049
				Oct	0.044
				Nov	0.032
				Dec	0.015

4-B. List all Wastewater Discharge and/or Land Application permits held by the system. Mark and label points of discharge and land application sites on the System Map.

¹ NPDES Or Land Application Permit Number	² Permitted Capacity Dec. 31, 1997 MGD	³ Design Capacity MGD	⁴ Average Annual Daily Discharge MGD	⁵ Name of Receiving Stream	⁶ Sub-Basin
NC0083909	Not specified on permit	0.303	0.043	Blackmar Gut in the Pasquotank River Basin*	Albemarle

*Pasquotank River Basin is per NPDES permit

4-C. List all Wastewater Discharge Interconnections with other systems. Mark and Label the locations of connections on the System Map.

1 Wastewater Discharger		2 Wastewater Receiver		3 Average Daily Amount Discharged or Received		4 Contract Maximum
Name	PWSID	Name	PWSID	MGD	# of Days	MGD
Not Applicable						

- 4-D. Number of sewer service connections: 0
- 4-E. Number of water service connections with septic systems: 778
- 4-F. Are there plans to build or expand wastewater treatment facilities in the next 10 years? No Yes Please explain.
Sandy beach environment is favorable for private septic systems.

SECTION 5: WATER CONSERVATION and DEMAND MANAGEMENT ACTIVITIES

5-A. What is the estimated total miles of distribution system lines? 22 Miles

5-B. List the primary types and sizes of distribution lines:

Asbestos Cement (AC)	Cast Iron (CI)	Ductile Iron (DI)	Galvanized Iron (GI)	Polyvinyl Chloride (PVC)	Other
				2, 4, 6, 8, 12"	
				100%	

- 5-C. Were any lines replaced in 1997? No Yes Linear feet
- 5-D. Were any new water mains added in 1997? No Yes Linear feet
- 5-E. Does this system have a program to work or flush hydrants? No Yes How often? 2 times per year
- 5-F. Does this system have a valve exercise program? No Yes How often? Yearly

- 5-G. Does this system have a cross-connection control program? No Yes
- 5-H. Has water pressure been inadequate in any part of the system? No Yes Please explain. _____
Accounting distribution from plant vs. billing. _____
- 5-I. Does this system have a leak detection program? No Yes What type of equipment or methods are used? _____
- 5-J. Has water use ever been restricted since 1992? No Yes Please explain. _____
- 5-K. Does this system have a water conservation plan? No Yes Please attach a copy. _____
- 5-L. Did this system distribute water conservation information in 1997? No Yes
- 5-M. Are there any local requirements on plumbing fixture water use which are stricter than the NC State Building Code? No Yes Please explain. _____
- 5-N. Does this system have a program to encourage replacement or retrofit of older, higher water-use plumbing fixtures? No Yes
- 5-O. Does this system have a water shortage or drought response plan? No Yes Please attach a copy. _____
- 5-P. Is raw water metered? No Yes
- 5-Q. Is finished water output metered? No Yes
- 5-R. Do you have a meter replacement program? No Yes
- 5-S. How many meters were replaced in 1997? 1 meters
- 5-T. How old are the oldest meters in the system? 2 years
- 5-U. What type of rate structure is used? Decreasing block Flat Rate Increasing Block Seasonally Adjusted Other
- 5-V. Are there meters for outdoor water use, such as irrigation, which are not billed for sewer services? No Yes # of meters _____
- 5-W. Does this system use reclaimed water or plan to use it within the next five years? No Yes # of connections _____ MGD _____

SECTION 6: SYSTEM MAP

Review, correct, and return the enclosed system map Check Plot to show the present boundaries of the water distribution system service area, points of intake and discharge, wells, water and wastewater treatment facilities, and water and wastewater interconnections with other systems. Also, show any proposed points of intake or discharge, wells, water and wastewater treatment facilities, water and wastewater interconnections, and future service area extensions. Use symbols shown on the attached map.

Completed By: Cavanaugh & Associates Date: May 19, 1998
 WATER SYSTEM: Dare Co. RWS PWSID: 04-28-035

SECTION 7: WATER DEMAND PROJECTIONS

7-A. Population to Be Served

	1997	2000	2010	2020
Year-Round	2085	2273	2830	3384
Seasonal (if applicable)*	20000	21802	27145	32458

*Please list the months of seasonal demand: June - September

7-B. Projected Average Daily Service Area Demand in Million Gallons per Day (MGD). (Does not include sales to other systems)

	1997 (Table 2-D)	2000	2010	2020
(1) Residential	0.091	0.099	0.124	0.148
(2) Commercial	0.033	0.036	0.050	0.068
(3) Industrial	-	-	-	-
(4) Institutional	-	-	-	-
(5) Backwash	0.043	0.043	0.043	0.043
(6) Unaccounted-for water	0.018	0.018	0.018	0.018
(7) Service Area Demand [sum(1) thru (6)]	0.185	0.196	0.234	0.277

7-C. Is non-residential water use expected to change significantly through 2020 from current levels of use? No Yes

If yes, please explain: _____

7-D. FUTURE SUPPLIES List new sources or facilities to be added and mark locations on the System Map.

1		2	3	4	5*
Source or Facility Name	PWSID	Source Type: Surface, Ground or Purchase	Additional Supply MGD	Year On-line	R or E

*NOTE: R=Regular Use, E=Emergency Use

7-E. What is the Total Amount of Future Supplies available for Regular Use? _____ MGD

7-F. FUTURE SALES CONTRACTS List new sales to other systems.

1		2			3	4*
Water Supplied to:		Contract Amount and Duration			Pipe Size(s) Inches	R or E
System Name	PWSID	MGD	Year Begin	Year End		

*NOTE: R=Regular Use, E=Emergency Use

7-G. What is the Total Amount of Future Sales Contracts for Regular Use? _____ MGD

SYSTEM NAME Dare County RWS Water System PWSID 04-28-035

SECTION 8: FUTURE WATER SUPPLY NEEDS

Local governments should maintain adequate water supplies to ensure that average daily water demands do not exceed 80% of the available supply. Completion of the following table will demonstrate whether existing supplies are adequate to satisfy this requirement and when additional water supply will be needed.

8-A. AVERAGE DAILY DEMAND AS PERCENT OF SUPPLY

<i>Available Supply, MGD</i>	1997	2000	2010	2020
(1) Existing Surface Water Supply (Item 3-B)	N/A	N/A	N/A	N/A
(2) Existing Ground Water Supply (Item 3-G)	0.648	0.648	0.648	0.648
(3) Existing Purchase Contracts (Item 3-E)	N/A	N/A	N/A	N/A
(4) Future Supplies (Item 7-E)	N/A	N/A	N/A	N/A
(5) Total Available Supply [sum (1) thru (4)]	0.648	0.648	0.648	0.648
<i>Average Daily Demand, MGD</i>				
(6) Service Area Demand (Item 7-B, Line 7)	0.185	0.196	0.234	0.277
(7) Sales Contracts (Item 2-H)	N/A	N/A	N/A	N/A
(8) Future Sales Contracts (Item 7-G)	N/A	N/A	N/A	N/A
(9) Total Average Daily Demand [sum (6) thru (8)]	0.185	0.196	0.234	0.277
(10) Demand as Percent of Supply = [(9) ÷ (5)] x 100	28%	30%	36%	43%
(11) Additional Supply Needed to Maintain 80%, MGD = [(9) x 0.80] - (5)	-0.417	-0.403	-0.355	-0.302

System Notes: _____

8-B. Does Line 10 above indicate that demand will exceed 80% of available supply before the year 2020? No Yes
 If yes, you are requested to attach a specific plan that should include the following:

- (1) Plans for obtaining additional water supply before demand exceeds 80% of available supply. The sooner the additional supply will be needed, the more specific your plans need to be.
- (2) A demand management program to ensure efficient use of your available water supply (for example, conducting water audits at least annually to closely monitor water use; targeting large water customers for increased efficiency; modifying water rate structures; identifying and reducing the amount of leaks and unaccounted for water; and reusing reclaimed water for non-potable uses).
- (3) Restrictive measures to control demand if the additional supply is not available when demand exceeds 80% of available supply, including:
 - Placing a moratorium on additional water connections until the additional supply is available.
 - Amending or developing your water shortage response ordinance to trigger mandatory water conservation as water demand approaches the available supply.

8-C. Are peak day demands expected to exceed the water treatment plant capacity by 2010? No Yes
 If yes, what are your plans for increasing water treatment capacity?

8-D. Does this system have an interconnection with another system capable of providing water in an emergency? No Yes
 If not, what are your plans for interconnecting (or please explain why an interconnection is not feasible or not necessary).

Service area is located too far away from another system.

8-E. Has this system participated in regional water supply or water use planning? No Yes Please describe.

Part of the Dare County Regional Water System

8-F. List the major water supply reports or studies used for planning.

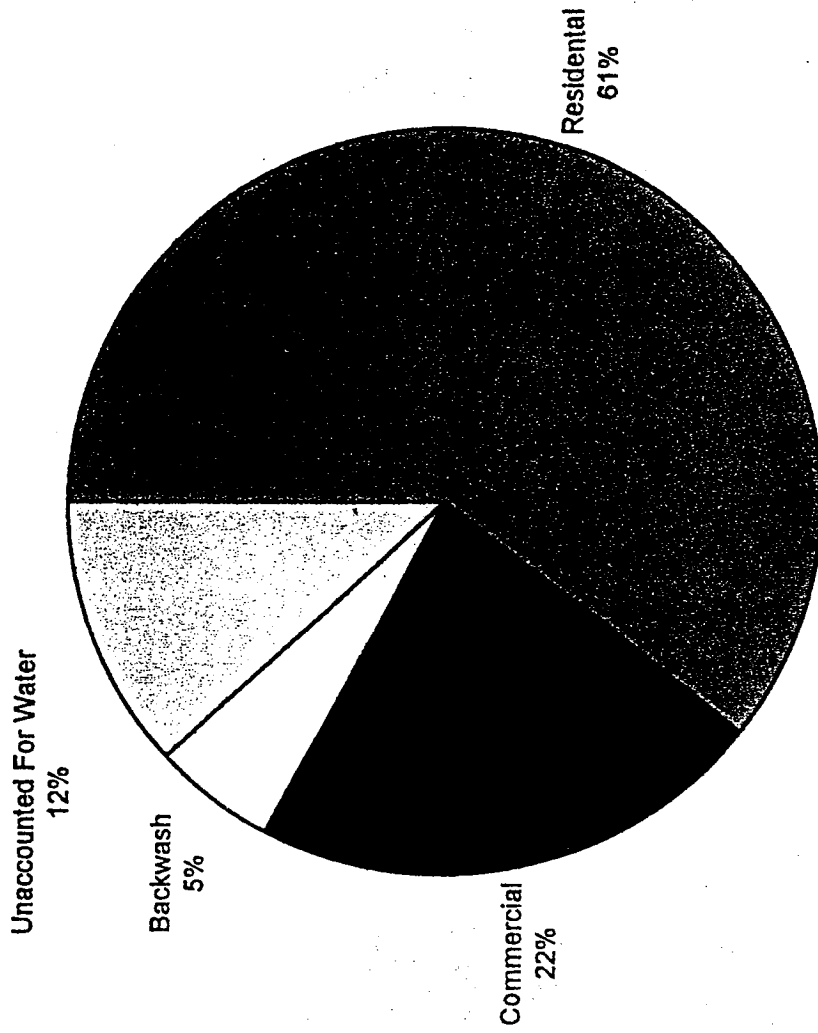
See attached list.

SECTION 9: TECHNICAL ASSISTANCE NEEDS

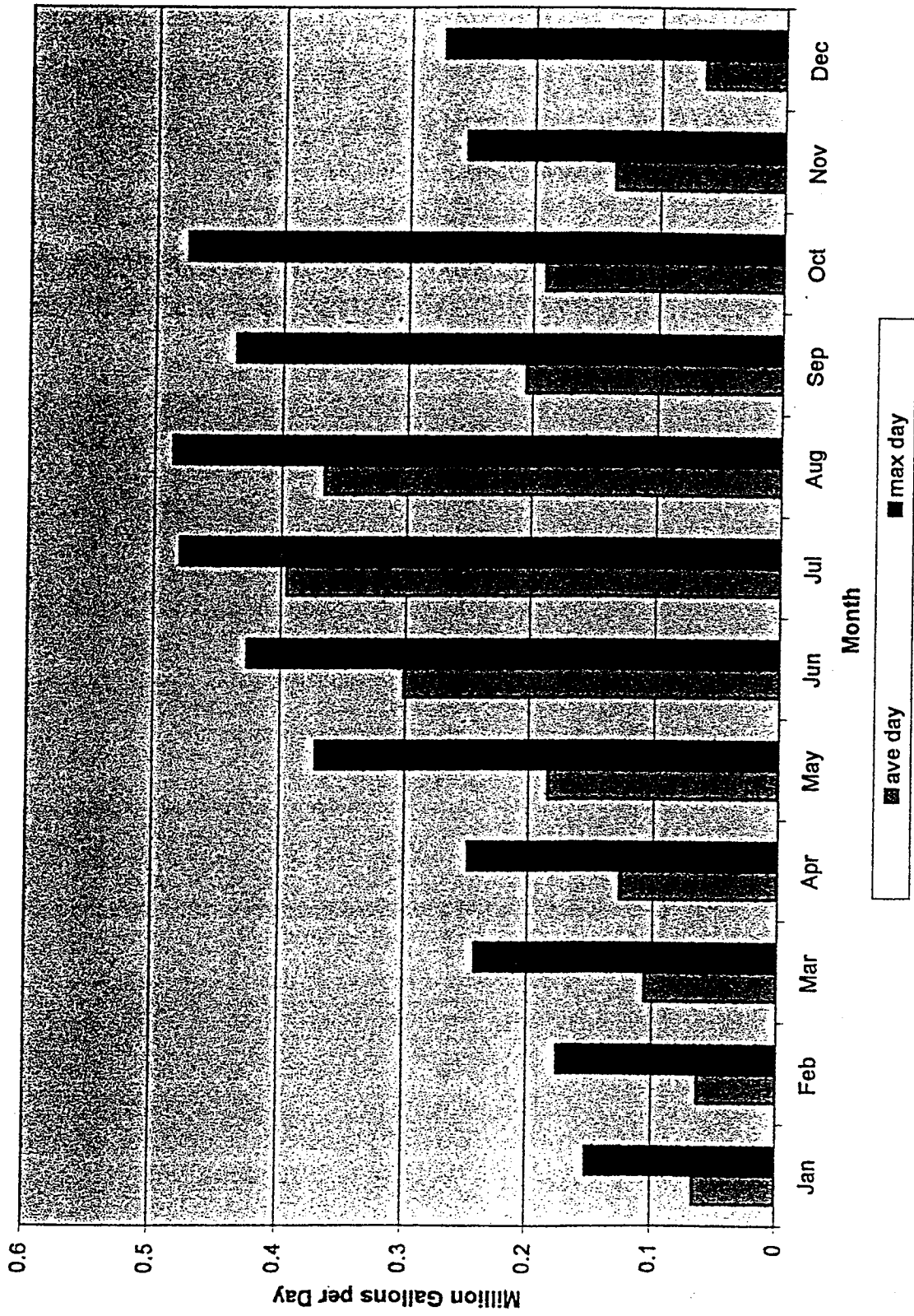
Is technical assistance needed:

- 9-A. to develop a local water supply plan? No Yes
- 9-B. with a leak detection program? No Yes
- 9-C. with a demand management or water conservation program? No Yes
- 9-D. with a water shortage response program? No Yes
- 9-E. to identify alternative or future water supply sources? No Yes
- 9-F. with a capacity development plan? No Yes
- 9-G. with a wellhead or source water protection program? No Yes
- 9-H. with water system compliance or operational problems? No Yes
- 9-I. with Consumer Confidence Reports? No Yes

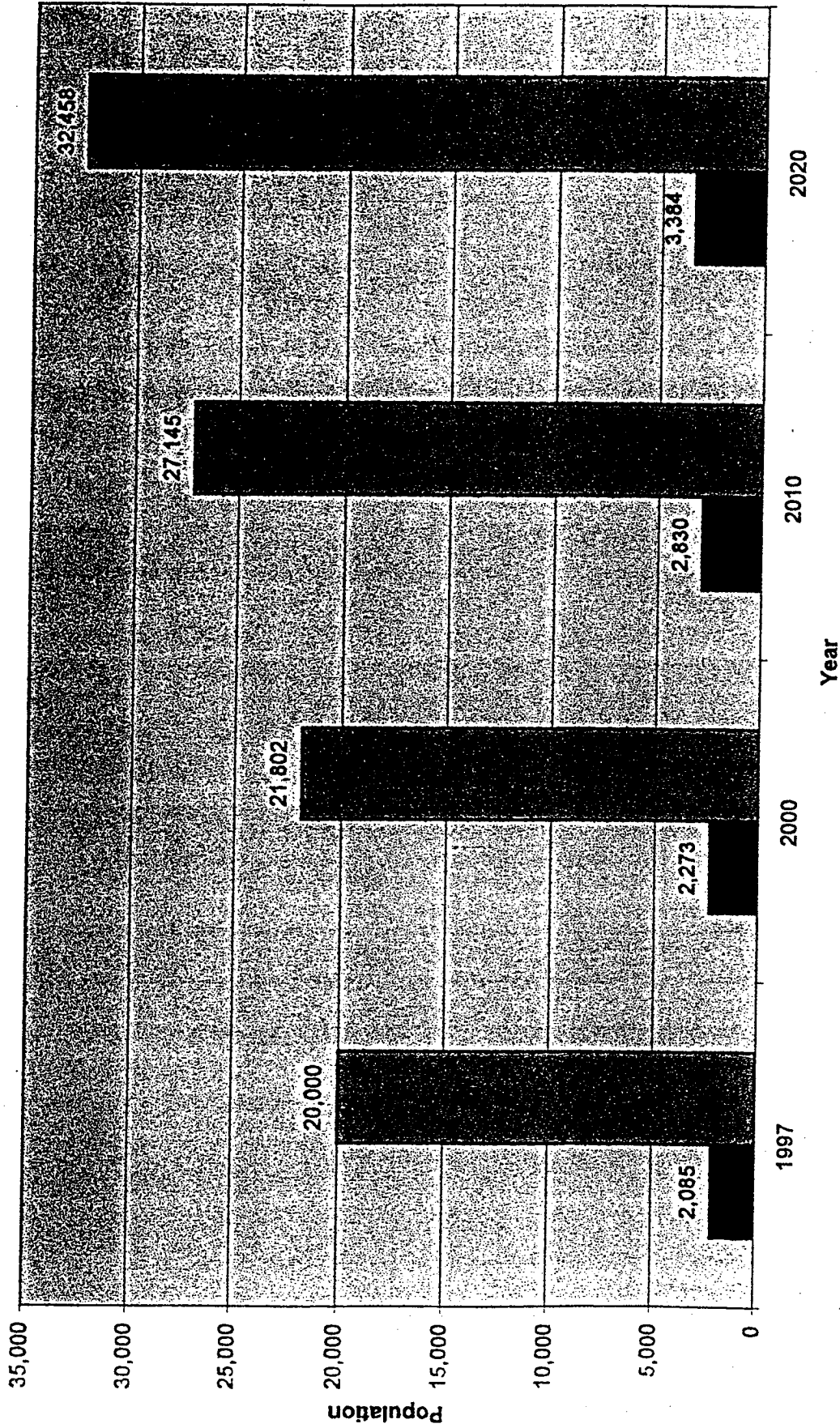
Average Daily Use by Type



Monthly Use

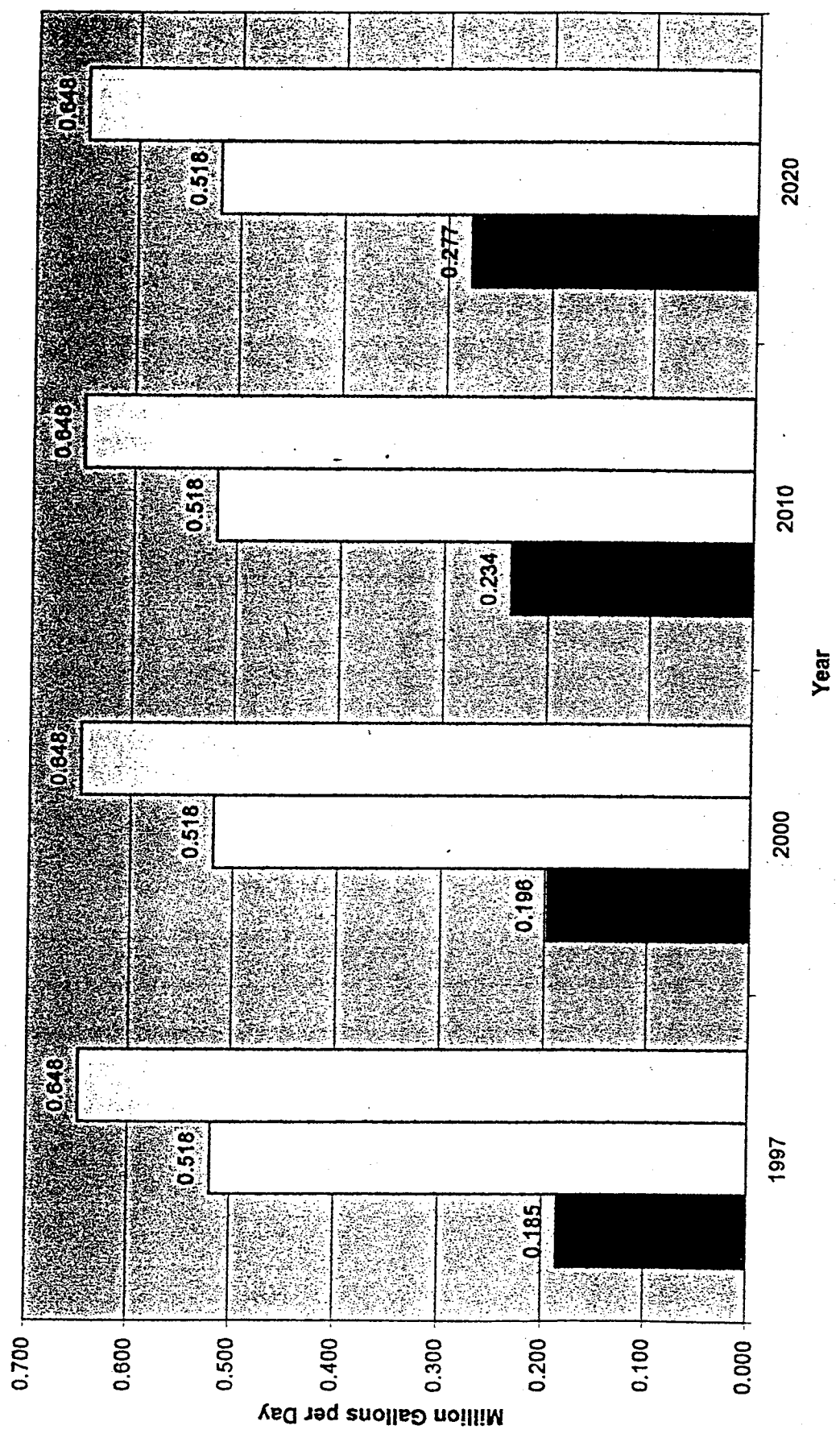


Population Projections



■ Year Round ■ Seasonal

Water Supply & Demand Projections



Total Average Demand
 80% of Supply
 Total Available Supply

Attachment M
Rural Economic Development Center
Grant Application



FEB 26 1999

February 23, 1999

Kelly S. King
Chairman

Billy Ray Hall
President

Mr. Terry L. Wheeler, County Manager
Dare County/Stumpy Point W&S District
PO Drawer 1000
Manteo, NC 27954

RE: Community Water System to Serve Stumpy Point Community

Dear Mr. Wheeler:

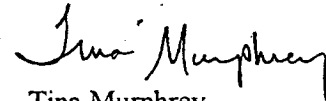
The Rural Economic Development Center, Inc. has made final determinations on applications submitted for funding in the 1999 round of Supplemental Grants category. As you know, this funding is established to provide assistance to local governments and non-profits with construction of needed infrastructure projects. Due to funding constraints, we were not able to fund all applications received. The application submitted by your jurisdiction was not selected for funding at this time.

The Rural Center appreciates the time and effort taken to prepare the application. We support your efforts to address the infrastructure needs of your community and invite you to apply for funding under the 1998 Clean Water Bond Act. Requests for proposals will be available in May and will carry a July 31 deadline.

Should you have any questions regarding your application and review or the upcoming funding round, please do not hesitate to contact us.

Sincerely,


Jean Crews-Klein, Director
Physical Infrastructure Division


Tina Murphrey
Program Director

North Carolina

Rural Economic

Development Center, Inc.

4021 Cary Drive

Raleigh, NC 27610

Phone: (919) 250-4314

FAX: (919) 250-4325

cc: Eric T. Weatherly, P.E.

**RURAL ECONOMIC DEVELOPMENT CENTER
SUPPLEMENTAL GRANTS APPLICATION
WATER SYSTEM TO SERVE
THE STUMPY POINT COMMUNITY**

DARE COUNTY, NORTH CAROLINA

PREPARED BY

**HOBBS, UPCHURCH & ASSOCIATES, P.A.
2009 S. CROATAN HIGHWAY
KILL DEVIL HILLS, NORTH CAROLINA**

DECEMBER, 1998

PART A.

**SUPPLEMENTAL GRANT PROJECT
APPLICATION**

SUPPLEMENTAL GRANTS APPLICATION

Project # _____

APPLICANT INFORMATION

Name of Unit: County of Dare/Stumpy Point Water and Sewer DistrictName and Title of Manager/Chief Elected Official/Officer: Terry L. Wheeler, County ManagerMailing Address: P.O. Drawer 1000 Street Address: _____City: Manteo State NC Zip: 27954Telephone: (252) 473-1101 FAX: (252) 473-1817 E-Mail: _____Project contact person: Eric T. Weatherly, P.E. Title: EngineerTelephone/FAX/Email of contact person: (252) 441-3913/(252) 441-2100/hua-kdh@beachlink.comFederal Tax ID Number: 56-60000293 Fiscal Year-End Date: June 30

Type of Organization:

- | | |
|------------------------------------------------|---------------------------------------------|
| <input type="checkbox"/> Municipality | <input checked="" type="checkbox"/> County |
| <input type="checkbox"/> Water/Sewer District | <input type="checkbox"/> Water Corporation |
| <input type="checkbox"/> Water/Sewer Authority | <input type="checkbox"/> Metro W/S District |
| <input type="checkbox"/> Sanitary District | <input type="checkbox"/> Other Non-Profit |

PROJECT INFORMATION

Project Title: Community Water System to Serve Stumpy Point CommunityProject beginning date: Contingent upon 18 mos. after receipt of
USDA-RD Funds Project ending date: USDA-RD FundsCounty(ies) to be served by project: DarePopulation of project area: 108 households X 2.6 people/household = 280 (Estimated)Type of project: Water Wastewater Other _____Project purpose: New System W/S Treatment Plant Upgrade Other Distribution Improvements
 Line Extensions OtherNumber users served by existing system: residential: N/A business: N/ANumber users to be added: residential: 108 business: 7Amount of funding requested from Rural Center: \$150,000

Other funding committed to project, including dates for confirmation (if applicable):

USDA-Rural Development

Amount of total project budget: \$1,396,000

PART B.

NARRATIVES

PROJECT DESCRIPTION

Stumpy Point is an unincorporated community located on the east coast of the Dare County mainland. Potable water for the residents of Stumpy Point is presently provided by individual wells. Wells in the area have very poor quality with high levels of iron, hardness, color, and coliform. The purpose of this fund application is for the construction of a new community water system to serve the Stumpy Point community.

A house count was performed to determine the water needs. There was a total of 108 residences and 8 commercial establishments. There are not population projections for this unincorporated community; however, a growth potential of 50% was used which could be realized if a community sewer system was ever built.

A test well was performed in the center of the community to a depth of approximately 360 feet. The test well yielded poor water quality with high levels of chlorides, color, and total dissolved solids. It was determined water treatment would need to be by reverse osmosis treatment.

A preliminary engineering report (PER) for the proposed water system was completed in June 1998 (attached to the application). The PER analyzed required production, treatment, distribution, and storage. The water source will be supplied by two 65 GPM wells. Treatment will consist of a 50,000 GPD reverse osmosis water treatment plant expandable to 75,000 GPD. Water storage and distribution was analyzed by two methods: with and without fire protection. A system with fire protection would include a 75,000 gallon elevated water storage tank, 13,000 LF of 8-inch water main, 700 LF of 6-inch water mains and appurtenances. A system without fire protection would consist of a 10,000 gallon hydropneumatic pressure tank, 4,700 LF of 6-inch water mains, 8,000 LF of 4-inch water mains, 1,000 LF of 2-inch water mains and appurtenances.

Cost estimates are presented in the PER for a system with and without fire protection. Capital costs for a system with fire protection is \$1,396,000 and cost for a system without fire protection is \$1,025,000. It is the desire of the County to construct a system with fire protection.

An application for project funding was made to the USDA-Rural Development (USDA-RD) in June 1998. The requested amount was \$1,025,000 because USDA-RD will not fund a system providing fire protection. It is likely additional funds will be sought out to upgrade the system for fire protection which includes larger water mains with fire hydrants and elevated storage.

Dare County has a policy to supply all its residents with safe and clean drinking water. Presently all the residents of the Outer Banks of Dare County have access to public water. There are no public water systems serving the mainland including the communities of Stumpy Point, Manns Harbor, and East Lake. A hydrogeological study has been performed for the Manns Harbor community.

Dare County is presently the applicant on a USDA-RD loan/grant application. The County could fund the project with open market loans; however, the County feels other areas of the county should not have to fund the Stumpy Point water system. The cost of water for so few residents is

very high and grant monies are needed to make the system feasible. The original application for USDA-RD funds was made under Dare County. However, the County is now in the process of forming the Stumpy Point Water and Sewer District which will encompass the area of the Stumpy Point fire district.

PROJECT JUSTIFICATION

Stumpy Point is primarily a fishing community with very few businesses. Economic development as a result of the community water system is not expected. However, the PER contains a section on health and safety (Page 6) and health survey results in Appendix B. This report has documented major health concerns of the residents' drinking water wells. Almost all the wells in the community have cosmetic problems including hardness, iron, color, and odor. It is documented in the study that approximately 50% of the wells tested contain total coliforms. Total coliforms are a primary of water parameter regulated by EPA and present a serious health hazard. In addition, two of the 28 wells sampled contained fecal coliform. Under EPA standards, all drinking water samples must be free of these bacteria.

COORDINATION WITH COMPREHENSIVE PLANS

Dare County has not prepared any strategic, capital improvement, or land use plans which addresses water facilities serving the mainland. However, Dare County realizes it must provide or attempt to provide equal services to all of its residences. The remaining unserved areas of the county are Stumpy Point, Manns Harbor, and East Lake. Dare County funded the PER and test well for the proposed Stumpy Point water system which totaled approximately \$35,000. Dare County has also funded a hydrogeological study in the Manns Harbor area which included several test wells.

REGIONAL PROJECTS

The Stumpy Point community water system would not be a regional project due to the remoteness of the area. The PER investigated the feasibility of obtaining its water supply from existing water systems in the county; however, this was far less feasible than constructing new wells and treatment facilities.

PART C.
EXHIBITS

PROJECT BUDGET

A budget ordinance for the project has not been adopted. As previously discussed, an application for funding has been submitted to the USDA-RD. Attached for your review are the sections of the preliminary engineering report for the USDA-RD application which covers the capital cost estimates and the operating budget costs.

STUMPY POINT WATER SYSTEM

SUMMARY OF TOTAL PROJECT COSTS

(Fire Protection/Exclude Lake Worth Area/Facilities
at the N.C. Hwy 264 & SR 1100 Intersection)

Total Construction Cost

—See Breakdown \$1,000,000

Engineering

—PER \$ 10,000
—Design \$ 71,600
—Inspection \$ 75,000
—Additional Services
 Environmental Assessment for Discharge \$ 45,000
 Reverse Osmosis Technical Consultant \$ 30,000
 Plant Site Wetlands Delineation \$ 7,500
\$ 239,100

Owner Administration, Legal and Miscellaneous \$ 20,000

Pilot Plant Rental \$ 10,000

Contingencies

—5% of Construction Cost \$ 50,000

Interest

—one year at 5% \$ 66,455

TOTAL PROJECT COST (Rounded) \$1,396,000

CONSTRUCTION COST ESTIMATE

A. PRODUCTION

1.	Wells 2 EA @ \$60,000/EA	\$120,000
2.	4" Raw Water Main 2,500 LF @ \$5.75/LF	\$ 14,375
3.	Treatment Lump Sum @ \$200,000	\$200,000
4.	Discharge Lump Sum @ \$100,000	<u>\$100,000</u>
	Total Treatment	\$434,375

B. STORAGE

1.	75,000 Gallon Elevated Storage Tank Lump Sum @ \$185,000	\$185,000
2.	Site Work and piping Lump Sum @ \$20,000	\$ 20,000
3.	Pilings Lump Sum @ \$50,000	<u>\$ 50,000</u>
	Total Storage	\$255,000

C. DISTRIBUTION

1.	8" PVC Water Main 13,000 LF @ \$13.00/LF	\$169,000
2.	6" PVC Water Main 700 LF @ \$9.00/LF	\$ 6,300
3.	8" Gate Valve 7 EA @ \$700.00/EA	\$ 4,900
4.	6" Gate Valve 23 EA @ \$450.00/EA	\$ 10,350
5.	Fire Hydrant Assembly 17 EA @ \$1,700.00/EA	\$ 28,900

6.	Fittings 5,000 LBS @ \$3.00/LB	\$ 15,000
7.	Bores 140 LF @ \$120.00/LF	\$ 16,800
8.	Water Services 113 EA @ \$375.00/EA	\$ 42,375
9.	Driveway Repair Lump Sum @ \$17,000	\$ 17,000
	Total Distribution	\$ 310,625
	TOTAL CONSTRUCTION COST	\$1,000,000

ANNUAL OPERATING BUDGET

1. OPERATION AND MAINTENANCE COSTS

Operating costs for labor, chemicals, membranes, and power is estimated at \$0.60/1,000 gallons based on \$0.12/kilowatt hour power and unattended operation. Based on a 6,000 gallon/month usage per customer, this cost equates to \$425.00/month or \$3.60/month per customer for 115 customers. Other operating costs should be budgeted for tank maintenance and distribution system maintenance. Tank maintenance should include painting every 5 years at an estimated cost of \$30,000. Tank maintenance equates to approximately \$4.25 per month per user based on 115 users. Approximately \$2,500/year should be budgeted for distribution maintenance which includes water main breaks, fire hydrant breaks and painting and valve maintenance. Distribution maintenance equates to approximately \$1.75 per user per month based on 115 users. Total operation and maintenance is estimated at \$9.60 per month per user based on 115 users.

2. INCOME

The only source of income for the project is from water bills. Based on a USDA-RD project, an average water bill is around \$28.00/month. Based on a \$28.00/month average water bill and deducting \$9.60 for operation and maintenance, \$18.40/month/user can be used for debt repayment or \$26,055/year. This is based on mandatory hook-up.

3. NEEDED FUNDS

The proposed project cost is \$1,396,000. However, USDA-RD will not fund water system projects with fire protection. As seen on page 25 of the PER, the project cost without fire protection is \$1,025,000. An example is Dare County seeks other fund sources to provide the \$371,000 to upgrade the water system with fire protection. If \$150,000 in grant was received from the Supplemental Grants Program, the remaining project cost is \$875,000. Based on a \$26,055 per year income from water bills and a USDA-RD forty year loan at 5% interest rate, a 50% grant would be needed from USDA-RD to pay off a project cost of \$875,000. We are not aware at this time how much grant money can be expected from USDA-RD.

PROJECT SCHEDULE

The start date of the project is contingent upon receiving funds from USDA-Rural Development. It is anticipated that the design period for the project will be approximately nine months with a construction period of approximately twelve months.

IDENTIFICATION OF OTHER FUNDING SOURCE

Dare County has applied for USDA-RD funds for the project. It is pointed out that a considerable amount of grant money will be required to make the project feasible. A feasible project would be considered a \$28.00 per month water bill which would provide revenues to pay the operating costs and the debt service. A copy of the USDA-RD application and their acknowledgment letter is attached.



United States
Department of
Agriculture

Rural
Development

104 Kehukee Park Road
Williamston, NC 27892
(252) 792-7197
(252) 809-0561 FAX
TDD (919) 873-2003

August 31, 1998

SEP 04 1998

Mr. Terry Wheeler
County Manager
P. O. Drawer 1000
Manteo, NC 27954

RE: Initial Application Package - Stumpy Point Water Project

Dear Mr. Wheeler:


This will acknowledge receipt of the initial application package for the referenced water project.

Your package appears to be complete and very well prepared by your engineer, Eric Weatherly.

We will review the application for feasibility and forward to our State Office with recommendations for further processing and will contact you as soon as a decision is reached.

Thank you for your interest in obtaining funding from our agency.

Sincerely,


JACQUELINE B. SURLS
Rural Development Specialist

cc: Eric Weatherly, Hobbs, Upchurch & Associates

U.S. DEPARTMENT OF AGRICULTURE
APPLICATION FOR FEDERAL ASSISTANCE
(For construction)

APPLICATION FOR FEDERAL ASSISTANCE

1. TYPE OF SUBMISSION: <i>Application</i> <input type="checkbox"/> Construction <input type="checkbox"/> Non-Construction <i>Preapplication</i> <input checked="" type="checkbox"/> Construction <input type="checkbox"/> Non-Construction	2. DATE SUBMITTED _____	Applicant Identifier _____
	3. DATE RECEIVED BY STATE _____	State Application Identifier _____
	4. DATE RECEIVED BY FEDERAL AGENCY _____	Federal Identifier _____

5. APPLICANT INFORMATION

Legal Name: Dare County	Organizational Unit: County
Address (give city, county, state, and zip code): P.O. Drawer 1000 Manteo, NC 27954	Name and telephone number of the person to be contacted on matters involving this application (give area code) Terry Wheeler, County Manager (252) 473-1101

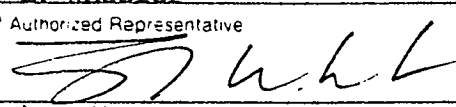
6. EMPLOYER IDENTIFICATION NUMBER (EIN): 5 6 - 6 0 0 0 2 9 3	7. TYPE OF APPLICANT: (enter appropriate letter in box) <input checked="" type="checkbox"/> B A. State B. County C. Municipal D. Township E. Interstate F. Intermunicipal G. Special District H. Independent School Dist. I. State Controlled Institution of Higher Learning J. Private University K. Indian Tribe L. Individual M. Profit Organization N. Other (Specify): _____
8. TYPE OF APPLICATION: <input checked="" type="checkbox"/> New <input type="checkbox"/> Continuation <input type="checkbox"/> Revision If Revision, enter appropriate letter(s) in box(es): <input type="checkbox"/> <input type="checkbox"/> A. Increase Award B. Decrease Award C. Increase Duration D. Decrease Duration Other (specify): _____	9. NAME OF FEDERAL AGENCY: USDA-Rural Development

10. CATALOG OF FEDERAL DOMESTIC ASSISTANCE NUMBER: 1 0 - 4 1 0 TITLE: Water and Waste Disposal Systems for Rural Communities	11. DESCRIPTIVE TITLE OF APPLICANT'S PROJECT: The project consists of a new water system for the Stumpy Point Community. The system consists of 18,100 feet of 6", 4" & 2" water mains, Reverse Osmosis Treatment and a 10,000 hydropneumatic storage tank with a potential of 113 users. It is proposed to acquire \$371,000 to upgrade the system for fire protection.
12. AREAS AFFECTED BY PROJECT (cities, counties, states, etc.): Stumpy Point Community Dare County	

13. PROPOSED PROJECT: Start Date: 11/98 Ending Date: 05/00	14. CONGRESSIONAL DISTRICTS OF: a. Applicant: 3rd b. Project: 3rd
-------------------------------------------------------------------------	--------------------------------------------------------------------------------

15. ESTIMATED FUNDING: <table border="1"> <tr><td>a Federal</td><td>\$ 1,025,000</td><td>.00</td></tr> <tr><td>b Applicant</td><td>\$</td><td>.00</td></tr> <tr><td>c State</td><td>\$</td><td>.00</td></tr> <tr><td>d Local</td><td>\$</td><td>.00</td></tr> <tr><td>e Other</td><td>\$ 371,000</td><td>.00</td></tr> <tr><td>f Program Income</td><td>\$ 1,396,000</td><td>.00</td></tr> <tr><td>g TOTAL</td><td>\$</td><td>.00</td></tr> </table>	a Federal	\$ 1,025,000	.00	b Applicant	\$.00	c State	\$.00	d Local	\$.00	e Other	\$ 371,000	.00	f Program Income	\$ 1,396,000	.00	g TOTAL	\$.00	16. IS APPLICATION SUBJECT TO REVIEW BY STATE EXECUTIVE ORDER 12372 PROCESS? a YES THIS PREAPPLICATION, APPLICATION WAS MADE AVAILABLE TO THE STATE EXECUTIVE ORDER 12372 PROCESS FOR REVIEW ON DATE _____ b NO <input type="checkbox"/> PROGRAM IS NOT COVERED BY E O 12372 <input type="checkbox"/> OR PROGRAM HAS NOT BEEN SELECTED BY STATE FOR REVIEW
a Federal	\$ 1,025,000	.00																				
b Applicant	\$.00																				
c State	\$.00																				
d Local	\$.00																				
e Other	\$ 371,000	.00																				
f Program Income	\$ 1,396,000	.00																				
g TOTAL	\$.00																				
	17. IS THE APPLICANT DELINQUENT ON ANY FEDERAL DEBT? <input type="checkbox"/> Yes If "Yes," attach an explanation <input checked="" type="checkbox"/> No																					

18 TO THE BEST OF MY KNOWLEDGE AND BELIEF, ALL DATA IN THIS APPLICATION PREAPPLICATION ARE TRUE AND CORRECT, THE DOCUMENT HAS BEEN DULY AUTHORIZED BY THE GOVERNING BODY OF THE APPLICANT AND THE APPLICANT WILL COMPLY WITH THE ATTACHED ASSURANCES IF THE ASSISTANCE IS AWARDED

a Typed Name of Authorized Representative Terry L. Wheeler	b Title County Manager	c Telephone number (252) 473-1101
Signature of Authorized Representative 		d Date Signed 6/24/98

INSTRUCTIONS FOR THE SF 424

This is a standard form used by applicants as a required facesheet for preapplications and applications submitted for Federal assistance. It will be used by Federal agencies to obtain applicant certification that States which have established a review and comment procedure in response to Executive Order 12372 and have selected the program to be included in their process, have been given an opportunity to review the applicant's submission.

- | Item: | Entry: | Item: | Entry: |
|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. | Self-explanatory. | 12. | List only the largest political entities affected (e.g., State, counties, cities). |
| 2. | Date application submitted to Federal agency (or State if applicable) & applicant's control number (if applicable). | 13. | Self-explanatory. |
| 3. | State use only (if applicable). | 14. | List the applicant's Congressional District and any District(s) affected by the program or project. |
| 4. | If this application is to continue or revise an existing award, enter present Federal identifier number. If for a new project, leave blank. | 15. | Amount requested or to be contributed during the first funding/budget period by each contributor. Value of in-kind contributions should be included on appropriate lines as applicable. If the action will result in a dollar change to an existing award, indicate <i>only</i> the amount of the change. For decreases, enclose the amounts in parentheses. If both basic and supplemental amounts are included, show breakdown on an attached sheet. For multiple program funding, use totals and show breakdown using same categories as item 15. |
| 5. | Legal name of applicant, name of primary organizational unit which will undertake the assistance activity, complete address of the applicant, and name and telephone number of the person to contact on matters related to this application. | 16. | Applicants should contact the State Single Point of Contact (SPOC) for Federal Executive Order 12372 to determine whether the application is subject to the State intergovernmental review process. |
| 6. | Enter Employer Identification Number (EIN) as assigned by the Internal Revenue Service. | 17. | This question applies to the applicant organization, not the person who signs as the authorized representative. Categories of debt include delinquent audit disallowances, loans and taxes. |
| 7. | Enter the appropriate letter in the space provided. | 18. | To be signed by the authorized representative of the applicant. A copy of the governing body's authorization for you to sign this application as official representative must be on file in the applicant's office. (Certain Federal agencies may require that this authorization be submitted as part of the application.) |
| 8. | Check appropriate box and enter appropriate letter(s) in the space(s) provided:
— "New" means a new assistance award.
— "Continuation" means an extension for an additional funding/budget period for a project with a projected completion date.
— "Revision" means any change in the Federal Government's financial obligation or contingent liability from an existing obligation. | | |
| 9. | Name of Federal agency from which assistance is being requested with this application. | | |
| 10. | Use the Catalog of Federal Domestic Assistance number and title of the program under which assistance is requested. | | |
| 11. | Enter a brief descriptive title of the project. If more than one program is involved, you should append an explanation on a separate sheet. If appropriate (e.g., construction or real property projects), attach a map showing project location. For preapplications, use a separate sheet to provide a summary description of this project. | | |

BUDGET INFORMATION — Construction Programs

NOTE: Certain Federal assistance programs require additional computations to arrive at the Federal share of project costs eligible for participation. If such is the case you will be notified.

COST CLASSIFICATION	a. Total Cost	b. Costs Not Allowable for Participation	c. Total Allowable Costs (Column a-b)
1. Administrative and legal expenses	\$ 20,000 .00	\$ 0 .00	\$ 20,000 .00
2. Land, structures, rights-of-way, appraisals, etc.	\$ 0 .00	\$ 0 .00	\$ 0 .00
3. Relocation expenses and payments	\$ 0 .00	\$ 0 .00	\$ 0 .00
4. Architectural and engineering fees	\$ 71,600 .00	\$ 17,435 .00	\$ 54,165 .00
5. Other architectural and engineering fees	\$ 92,500 .00	\$ 0 .00	\$ 92,500 .00
6. Project inspection fees	\$ 75,000 .00	\$ 6,400 .00	\$ 68,600 .00
7. Site work	\$ 0 .00	\$ 0 .00	\$ 0 .00
8. Demolition and removal	\$ 0 .00	\$ 0 .00	\$ 0 .00
9. Construction	\$ 1,000,000 .00	\$ 313,500 .00	\$ 686,500 .00
10. Equipment	\$ 10,000 .00	\$ 0 .00	\$ 10,000 .00
11. Miscellaneous	\$ 10,000 .00	\$ 0 .00	\$ 10,000 .00
Biological Survey = \$10,000	66,455	17,655	48,800
Due Year Interest @ 5%			
12. SUBTOTAL	\$ 1,345,555 .00	\$ 354,990 .00	\$ 990,565 .00
13. Contingencies (sum of lines 1-11)	\$ 50,000 .00	\$ 15,675 .00	\$ 34,325 .00
14. SUBTOTAL	\$ 1,395,555 .00	\$ 370,665 .00	\$ 1,024,890 .00
15. Project (program) income	\$ 0 .00	\$ 0 .00	\$ 0 .00
16. TOTAL PROJECT COSTS (subtract #15 from # 14) Rounded	\$ 1,396,000 .00	\$ 371,000 .00	\$ 1,025,000 .00
FEDERAL FUNDING			
17. Federal assistance requested, calculate as follows: Enter eligible costs from line 16c Multiply X _____ % (Consult Federal agency for Federal percentage share). Enter the resulting Federal share.			\$.00

INSTRUCTIONS FOR THE SF-424C

This sheet is to be used for the following types of applications: (1) "New" (means a new [previously unfunded] assistance award); (2) "Continuation" (means funding in a succeeding budget period which stemmed from a prior agreement to fund); and (3) "Revised" (means any changes in the Federal government's financial obligations or contingent liability from an existing obligation). If there is no change in the award amount there is no need to complete this form. Certain Federal agencies may require only an explanatory letter to effect minor (no cost) changes. If you have questions please contact the Federal agency.

Column a. — If this is an application for a "New" project, enter the total estimated cost of each of the items listed on lines 1 through 16 (as applicable) under "COST CLASSIFICATIONS."

If this application entails a change to an existing award, enter the eligible amounts *approved under the previous award* for the items under "COST CLASSIFICATION."

Column b. — If this is an application for a "New" project, enter that portion of the cost of each item in Column a. which is *not* allowable for Federal assistance. Contact the Federal agency for assistance in determining the allowability of specific costs.

If this application entails a change to an existing award, enter the adjustment [+ or (-)] to the previously approved costs (from column a.) reflected in this application.

Column c. — This is the net of lines 1 through 16 in columns "a." and "b."

Line 1 — Enter estimated amounts needed to cover administrative expenses. Do not include costs which are related to the normal functions of government. Allowable legal costs are generally only those associated with the purchase of land which is allowable for Federal participation and certain services in support of construction of the project.

Line 2 — Enter estimated site and right(s)-of-way acquisition costs (this includes purchase, lease, and/or easements).

Line 3 — Enter estimated costs related to relocation advisory assistance, replacement housing, relocation payments to displaced persons and businesses, etc.

Line 4 — Enter estimated basic engineering fees related to construction (this includes start-up services and preparation of project performance work plan).

Line 5 — Enter estimated engineering costs, such as surveys, tests, soil borings, etc.

Line 6 — Enter estimated engineering inspection costs.

Line 7 — Enter estimated costs of site preparation and restoration which are not included in the basic construction contract.

Line 9 — Enter estimated cost of the construction contract.

Line 10 — Enter estimated cost of office, shop, laboratory, safety equipment, etc. to be used at the facility, if such costs are not included in the construction contract.

Line 11 — Enter estimated miscellaneous costs.

Line 12 — Total of items 1 through 11.

Line 13 — Enter estimated contingency costs. (Consult the Federal agency for the percentage of the estimated construction cost to use.)

Line 14 — Enter the total of lines 12 and 13.

Line 15 — Enter estimated program income to be earned during the grant period, e.g., salvaged materials, etc.

Line 16 — Subtract line 15 from line 14.

Item 17 — This block is for the computation of the Federal share. Multiply the total allowable project costs from line 16, column "c." by the Federal percentage share (this may be up to 100 percent; consult Federal agency for Federal percentage share) and enter the product on line 17.


ASSURANCES — CONSTRUCTION PROGRAMS

Note: Certain of these assurances may not be applicable to your project or program, If you have questions, please contact the Awarding Agency. Further, certain federal assistance awarding agencies may require applicants to certify to additional assurances. If such is the case, you will be notified.

As the duly authorized representative of the applicant I certify that the applicant:

1. Has the legal authority to apply for Federal assistance, and the institutional, managerial and financial capability (including funds sufficient to pay the non-Federal share of project costs) to ensure proper planning, management and completion of the project described in this application.
2. Will give the awarding agency, the Comptroller General of the United States, and if appropriate, the State, through any authorized representative, access to and the right to examine all records, books, papers, or documents related to the assistance; and will establish a proper accounting system in accordance with generally accepted accounting standards or agency directives.
3. Will not dispose of, modify the use of, or change the terms of the real property title, or other interest in the site and facilities without permission and instructions from the awarding agency. Will record the Federal interest in the title of real property in accordance with awarding agency directives and will include a covenant in the title of real property acquired in whole or in part with Federal assistance funds to assure nondiscrimination during the useful life of the project.
4. Will comply with the requirements of the assistance awarding agency with regard to the drafting, review and approval of construction plans and specifications.
5. Will provide and maintain competent and adequate engineering supervision at the construction site to ensure that the complete work conforms with the approved plans and specifications and will furnish progress reports and such other information as may be required by the assistance awarding agency or State.
6. Will initiate and complete the work within the applicable time frame after receipt of approval of the awarding agency.
7. Will establish safeguards to prohibit employees from using their positions for a purpose that constitutes or presents the appearance of personal or organizational conflict of interest, or personal gain.
8. Will comply with the Intergovernmental Personnel Act of 1970 (42 U.S.C. §§ 4728-4763) relating to prescribed standards for merit systems for programs funded under one of the nineteen statutes or regulations specified in Appendix A of OPM's Standards for a Merit System of Personnel Administration (5 C.F.R. 900, Subpart F).
9. Will comply with the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. §§ 4801 et seq.) which prohibits the use of lead based paint in construction or rehabilitation of residence structures.
10. Will comply with all Federal statutes relating to non-discrimination. These include but are not limited to: (a) Title VI of the Civil Rights Act of 1964 (P.L. 88-352) which prohibits discrimination on the basis of race, color or national origin; (b) Title IX of the Education Amendments of 1972, as amended (20 U.S.C. §§ 1681-1683, and 1685-1686) which prohibits discrimination on the basis of sex; (c) Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. § 794) which prohibit discrimination on the basis of handicaps; (d) the Age Discrimination Act of 1975, as amended (42 U.S.C. §§ 6101-6107) which prohibits discrimination on the basis of age; (e) the Drug Abuse Office and Treatment Act of 1972 (P.L. 93-255), as amended, relating to non-discrimination on the basis of drug abuse; (f) the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970 (P.L. 91-616), as amended, relating to nondiscrimination on the basis of alcohol abuse or alcoholism; (g) §§ 523 and 527 of the Public Health Service Act of 1912 (42 U.S.C. 290 dd-3 and 290 ee-3), as amended, relating to confidentiality of alcohol and drug abuse patient records; (h) Title VIII of the Civil Rights Act of 1968 (42 U.S.C. § 3601 et seq.), as amended, relating to non-discrimination in the sale, rental or financing of housing; (i) any other non-discrimination provisions in the specific statute(s) under which application for Federal assistance is being made, and (j) the requirements on any other non-discrimination Statute(s) which may apply to the application.

11. Will comply, or has already complied, with the requirements of Titles II and III of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646) which provides for fair and equitable treatment of persons displaced or whose property is acquired as a result of Federal and federally assisted programs. These requirements apply to all interests in real property acquired for project purposes regardless of Federal participation in purchases.
12. Will comply with the provisions of the Hatch Act (5 U.S.C. §§ 1501-1508 and 7324-7328) which limit the political activities of employees whose principal employment activities are funded in whole or in part with Federal funds.
13. Will comply, as applicable, with the provisions of the Davis-Bacon Act (40 U.S.C. §§ 276a to 276a-7), the Copeland Act (40 U.S.C. § 276c and 18 U.S.C. § 874), the Contract Work Hours and Safety Standards Act (40 U.S. §§ 327-333) regarding labor standards for federally assisted construction subagreements.
14. Will comply with the flood insurance purchase requirements of Section 102(a) of the Flood Disaster Protection Act of 1973 (P.L. 93-234) which requires recipients in a special flood hazard area to participate in the program and to purchase flood insurance if the total cost of insurable construction and acquisition is \$10,000 or more.
15. Will comply with environmental standards which may be prescribed pursuant to the following: (a) institution of environmental quality control measures under the National Environmental Policy Act of 1969 (P.L. 91-190) and Executive Order (EO) 11514; (b) Environmental Policy Act of 1969 (P.L. 91-190) and Executive Order (EO) 11514; (b) notification of violating facilities pursuant to EO 11738; (c) protection of wetlands pursuant to EO 11990; (d) evaluation of flood hazards in floodplains in accordance with EO 11988; (e) assurance of project consistency with the approved State management program developed under the Coastal Zone Management Act of 1972 (16 U.S.C. §§ 1451 et seq.); (f) conformity of Federal actions to State (Clean Air) Implementation Plans under Section 176(c) of the Clean Air Act of 1955, as amended (42 U.S.C. § 7401 et seq.); (g) protection of underground sources of drinking water under the Safe Drinking Water Act of 1974, as amended, (P.L. 93-523); and (h) protection of endangered species under the Endangered Species Act of 1973, as amended, (P.L. 93-205).
16. Will comply with the Wild and Scenic Rivers Act of 1968 (16 U.S.C. §§ 1271 et seq.) related to protecting components or potential components of the national wild and scenic rivers system.
17. Will assist the awarding agency in assuring compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. 470), EO 11593 (identification and preservation of historic properties), and the Archaeological and Historic Preservation Act of 1974 (16 U.S.C. 469a-1 et seq.).
18. Will cause to be performed the required financial and compliance audits in accordance with the Single Audit Act of 1984.
19. Will comply with all applicable requirements of all other Federal laws, Executive Orders, regulations and policies governing this program.

SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL 	TITLE Terry L. Wheeler, County Manager Dare County
APPLICANT ORGANIZATION County of Dare, N.C.	DATE SUBMITTED 6/24/98

Project Narrative

Water System to Serve the Stumpy Point Community

The project will consist of a new water system to serve the Stumpy Point Community in Dare County, N.C. There are approximately 118 residences and small businesses in the area with poor well water quality. A test well has determined the new water system will require a Reverse Osmosis Water Treatment Plant rated at 50,000 gpd expandable to 75,000 gpd. The distribution system will consist of 18,100 feet of water main. USDA-RD will not fund systems designed for fire protection, therefore the system would consist of 6", 4" and 2" water mains with a 10,000 gallon hydropneumatic storage tank. The Owners intend to seek additional funds to provide fire protection including 8" and 6" water mains with fire hydrants every 2,000' and a 75,000 gallon elevated storage tank. Estimated cost of the system without fire protection is \$1,025,000 and \$1,396,000 with fire protection.

**RURAL CENTER
MEMORANDUM OF UNDERSTANDING**

MEMORANDUM OF UNDERSTANDING

between

North Carolina Rural Economic Development Center, Inc.

and

County of Dare/Stumpy Point Water and Sewer District
(applicant)

Conditions and Regulations of the Rural Center Supplemental and Capacity Grants Program

PROJECT TITLE: Community Water System to Serve Stumpy Point Community

PROJECT SPONSOR: County of Dare

ADDRESS: P.O. Drawer 1000

Manteo, NC 27954

The purpose of this Memorandum of Understanding is to outline conditions and regulations for a general working relationship between the Rural Economic Development Center (Rural Center), and the applicant organization regarding the Rural Center Supplemental and Capacity Grants Programs.

The following conditions and regulations apply to all Rural Center Supplemental and Capacity Projects:

Financial Commitment of Local Resources

It is clearly understood that the grantee will provide a letter signed by the chief elected official, chief administrative officer, or chief financial officer stating the amount, source, and availability of local dollars set aside for the project. Local funds must be expended before Rural Center dollars are requested.

Disbursement Policy

The Rural Center will disburse up to ninety percent (90%) of grant funds upon submission of satisfactory evidence that the primary and secondary grant and/or loan sources have been drawn down by ninety percent (90%) and that one hundred percent (100%) of local funds have been expended. Documentation in support of expenses must accompany the Financial Request Form.

Project Schedule

A timeline has been provided to the Rural Center as part of the application package. This represents the adopted schedule for this project. The grantee understands that the Rural Center will establish the date for termination of its contract using this information and that time is of the essence. Updates or changes to the project schedule must be provided to the Rural Center as they are adopted by the grantee for use in administering this project. The Rural Center reserves the right to reject or ask for further clarification regarding the timeline and its implementation.

Contract Time Requirements

The Rural Center may revoke or revise its approval of funding for the project if work intended to be assisted is not under contract within six (6) months after the Rural Center approval date of the project and if not completed within eighteen (18) months of Rural Center approval. The Rural Center approval date will be incorporated in the contract as the Commencement Date.

Changes in Project Scope

It is clearly understood, that a change in the project scope may not be implemented without prior written approval from Rural Center and submission to the Rural Center of evidence of the Primary Funder's approval of the change(s). A change of scope will include any change to the project design, capacity of the system, the number and/or type of customers served, or equipment items purchased.

LOCAL COMMITMENT FORM

LOCAL COMMITMENT FORM

Supplemental Grants Program

North Carolina Rural Economic Development Center, Inc.

and

County of Dare

(applicant)

PROJECT TITLE: Community Water System to Serve Stumpy Point Community

PROJECT SPONSOR: County of Dare /Stumpy Point Water and Sewer District

ADDRESS: P.O. Drawer 1000

Manteo, NC 27954

Applicants for Supplemental Grant funds may provide the local commitment dollars from a number of sources. NCGS 159 provides guidance on the sources and uses of funds available to units of local government. It also provides that 1) units of local government must operate on a balanced budget and 2) must provide audits and financial statements to the North Carolina Local Government Commission (LGC), the agency which monitors local government units and oversees debt issuance. Public Authorities and Special Districts are covered under NCGS 159.

NCGS 159, Subchapter (IV), Article 4, Local Government Bond Act, provides that the net debt of any unit cannot exceed 8% of the assessed value of property subject to taxation by the unit. Revenue bonds and Installment Purchase Agreement debt, while regulated by the LGC, are currently not covered in this limit.

NCGS 162A, Article 1, Water and Sewer Authorities, provides that such authorities have the power to issue revenue bonds and revenue refunding bonds to finance capital improvements, subject to LGC approval.

In reviewing applications for Supplemental Funding, the Rural Center will take into consideration the applicant's financial position relative to other, similar units of local government (as through the Ability to Pay Ranking). Consideration will be given to the applicant's ability to handle additional debt as may be required for the project. Other information required by the center to assist in the review of financial position is as follows:

1. Which of the following financing options are being used to finance this project? (Check those that apply.)

- | | |
|--------------------------------------------------------------|--------------------------------------------------------|
| <input type="checkbox"/> Local Cash | <input type="checkbox"/> Certificates of Participation |
| <input checked="" type="checkbox"/> General Obligation Bonds | <input type="checkbox"/> Refunding Bonds |
| <input type="checkbox"/> Revenue Bonds | <input type="checkbox"/> None of the above |
| <input type="checkbox"/> Installment Purchase Agreement | <input type="checkbox"/> Other |

Attachment N
Health Survey

RESULTS OF HEALTH SURVEYS PERFORMED FOR THE STUMPY POINT COMMUNITY

It is our understanding that Stumpy Point would qualify for grant moneys through the High Unit Cost Grant fund program based on the following conditions:

Total coliform: Communities less than 150 users, sample 15 wells of which 50% must test positive for total coliform

Dare County has already performed a lot of work regarding health surveys in an attempt to achieve a 75% grant from USDA-RD. Attached is various information related to the study requirements and our findings.

Attached is a "For Your Information Bulletin" dated January 27, 1998 from USDA. Per the requirements of their health survey, we randomly selected homes in the community and took samples from the wells. The results and information collected from this survey are contained in the PER. Attached is page 7 from the PER which outlines the results of the survey. Basically, of 110 potential participants for the survey, 28 samples were collected of which 14 failed total coliform.

When the results were sent to USDA, they said we were not supposed to randomly select homes but to sample every fourth house. Attached are several correspondences between USDA and myself to resolve this issue. Finally, the survey was performed again. Results of the second survey are attached in this section. The results indicated 30 samples collected of which 12 tested positive for total coliform.

Based on the criteria of the High Unit Cost Grant Application, communities of less than 150 users, 7 must test positive for total coliform. It is our opinion that we have proved we meet these criteria. It is also pointed out that two of samples indicated a presence of fecal coliform.



United States
Department of
Agriculture

Rural
Development

104 Kehukee Park Road
Williamston, NC 27892
(919) 792-7197
(919) 809-0561 FAX

FOR YOUR INFORMATION BULLETIN

January 27, 1998

SUBJ: 75% Grant Qualification Requirements

TO: Engineers in District VI

FROM: Jacki Surles, Rural Development Specialist

The change in our regulations now requires that we must show that the 75% grant determination now has two qualifiers:

- a. Median household income is below the higher of poverty line or 80% of state nonmetro median income AND*
- b. Project is necessary to alleviate a health or sanitary problem.*

See the following info sheets regarding North Carolina policy. As further clarification, surveys taken to confirm the existence of a sanitary or health problem impacting at least 51% of the residential users will be completed as follows:

- (1) System has less than 500 users. Sample 1 of 4 users or 70 samples, whichever is less. Sample is to be random, indicated on a map by number and a list developed correlating that number to a name and results of the survey.*
- (2) System has 500 or more users. Sample 1 of 8 users or 110 samples, whichever is less. Sample is to be random, indicated in a map by number, and a list developed correlating that number to a name and the results of the survey.*

If you are working with a client who may be a potential borrower from RUS, please call me to arrange a meeting prior to submitting your initial application as some new requirements must be met before we can process the initial application.

Thanks for your continued cooperation with me and our office.

*Rural Development is an Equal Opportunity Lender.
Complaints of discrimination should be sent to:
Secretary of Agriculture, Washington, DC 20250*

Lake Worth will not be included in this project. Appendix B contains a map of the properties and houses in Stumpy Point and the houses from which a well water sample was taken. Also attached are the total coliform test results. As previously mentioned in the study, house counts indicated a total of 110 residences and 8 businesses. Further evaluation by Dare County indicated only 108 of the residences were habitable and only 7 businesses existed. Of the 108 residences, it was determined there were four cases in which two residences shared a well. In addition, it was discovered that one of the businesses had no well or plumbing. Therefore, the total number of residences was 104 and the total number of businesses was 6 for a grand total of 110 potential participants to be surveyed. The 28 wells sampled represent 25% of 110 total potential samples. It is pointed out that there may be other instances where residences share a well or possibly one of the several churches do not have a well.

Results of the nitrate samples indicated only one failure out of 28 samples. However, 14 of the 28 total coliform samples failed. This represents a 50.9% failure rate on the total coliform test ($110 \times 25\% = 27.50$, $14 \div 27.50 = 50.9\%$). Although the survey guidelines require a failure rate of 51%, we feel 50.9% should be adequate. If this is not the case, we request permission to conduct more research due to the potential of residences sharing wells or having no well at all.

The following background information is provided for total coliform regulations. The United States Environmental Protection Agency has determined that the presence of total coliforms is a possible health concern. Total coliforms are common in the environment and generally not harmful themselves. The presence of these bacteria in drinking water however generally is a result of a problem with water treatment or the pipes which distribute the water and indicates that the water may be contaminated with organisms that can cause disease. Disease symptoms include diarrhea, cramps, nausea, and possibly jaundice and any associated headaches and fatigue. EPA has set an enforceable drinking water standard for total coliforms to reduce the risk of these adverse health effects.

Under this standard, no more than 5% of the samples collected during a month can contain these bacteria.

For additional information, 5 wells were sampled for secondary parameters. A copy of these results are also contained in Appendix B. Three of the 5 wells sampled had a total hardness that exceeded the maximum drinking water standard and 5 of the 5 sampled had color that exceeded the maximum drinking water standard. It is also pointed out that two of the wells had the presence of fecal coliform. The presence of fecal coliforms or E-coli is a serious health concern. Its presence in drinking water is serious because fecal coliforms are associated with sewage or animal waste. Under the EPA standards, all drinking water samples must be free of these bacteria.

B. DEMAND PROJECTIONS

1. TARGET AREA

Due to the remoteness of the area, the Stumpy Point community is the only area considered in this study. This study will also include the Lake Worth area along NC Hwy 264. The potential users in the Lake Worth area have indicated to the Stumpy Point Civic Association their desire to be a part of a community water system.

2. WATER DEMANDS

The typical residential customer utilizes 5,000-6,000 gallons per month of potable water. The type of commercial establishments in the area (Post Office, churches, marina, Forestry Service) will not typically exceed the residential demand.

Peak flow in gallons per minute (GPM) is needed to size water distribution facilities. Based on a demand of 6,000 gallons per month, average flow is 0.14 GPM per user. The Rules Governing Public Water Systems prepared by the Department of Environment and Natural Resources has developed charts to determine peak demand for a system based on the size of the residential community



United States
Department of
Agriculture

Rural
Development

104 Kehukee Park Road
Williamston, NC 27892
(252) 792-7197
(252) 809-0561 FAX
TDD (919) 873-2003

November 25, 1998

Hobbs, Upchurch & Associates, P.A.
PO Drawer 429
Kill Devil Hills, NC 27948

NOV 27 1998

Attn. Eric T. Weatherly, P.E.

Dear Mr. Weatherly:

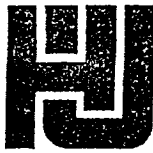
We are responding to your request to provide to you in writing the requirements of USDA RD on conducting a survey to confirm the existence of a sanitary or health problem impacting at least 51% of the resident users.

The survey sampling requirements for a system that will have less than 500 users is the lesser of 1 of 4 users or 70 samples. Since the Stumpy Point community has approximately 110 users, the sample of 1 of 4 users will be acceptable. This means that every fourth house should be sampled to provide a representative sampling of the community. We would note that in the PER, page 2 of the sampling map reflected only one sample being taken. We do not deem this to be random selection.

If there are still questions that arise from this explanation, please feel free to contact us.

E. REID PAUL
Rural Development Specialist

Rural Development is an Equal Opportunity Lender.
Complaints of discrimination should be sent to:
Secretary of Agriculture, Washington, DC 20250



Hobbs, Upchurch & Associates, P.A.
Consulting Engineers

2009 S. Croatan Highway • P.O. Drawer 429 • Kill Devil Hills, North Carolina 27948

January 5, 1999

E. Reid Paul
Rural Development Specialist
U.S. Department of Agriculture
Rural Development
104 Kehukee Park Road
Williamston, NC 27892

RE: Stumpy Point Water System
HUA No.: DR9806

Dear Reid:

Per your letter dated November 25, 1998 Dare County conducted the health survey again, sampling as nearly as possible every fourth user. Attached for your review is a copy of the sampling results and a location map.

If you have any questions or if additional information is needed please do not hesitate to contact myself.

Sincerely,
HOBBS, UPCHURCH & ASSOCIATES, P.A.

Eric T. Weatherly, P.E.
Division Manager

ETW/hb
Attachments

Cc: Bob Oreskovich, Director, Dare County Water Department

H:\DARE COUNTY\DR9806 STUMPY POINT USDA APPLICATION\PAUL.DOC



United States
Department of
Agriculture

Rural
Development

104 Kehukee Park Road
Williamston, NC 27892
(252) 792-7197
(252) 809-0561 FAX
TDD (919) 873-2003

February 3, 1999

FEB 04 1999

Hobbs, Upchurch & Associates, P.A.
PO Drawer 429
Kill Devil Hills, NC 27948

Attn: Eric T. Weatherly, P.E.

Re: Stumpy Point Water Project

Dear Eric:

We have received the updated health survey that was completed for the Stumpy Point community and of course, based on this sampling, there was 30 samples collected with 12 positive samples observed which represents 40% and does not meet the required 51% to possibly qualify for a maximum 75% grant from USDA/RD.

Also, on November 25, 1998 we discussed the possibility of Dare County forming a water district for the Stumpy Point area or a sanitary district which could then apply as the interested entity. Have you had any conversations with county officials about this?

Please contact us about the project.

Sincerely,

E. REID PAUL
Rural Development Specialist



Hobbs, Upchurch & Associates, P.A.
Consulting Engineers

2009 S. Croatan Highway • P.O. Drawer 429 • Kill Devil Hills, North Carolina 27948

February 10, 1999

Mr. Terry Wheeler
County Manager
Dare County
P.O. Drawer 1000
Manteo, NC 27954

RE: Stumpy Point Community Water System
HUA No.: DR9806 -- USDA Application

Dear Terry:

I received the attached letter dated 02/03/99 from the USDA-Rural Development acknowledging that the health survey conducted did not document a sufficient number of residents with an imminent health hazard. However, we are still eligible for up to 45% grant from this funding agency. As you are aware, we have also applied for a Rural Center - Supplemental Grant Fund in which up to \$150,000 in grant may be received. We expect to hear from this application by the end of February. I also plan to apply for grant monies through the new Clean Water Bond package which was recently made available.

Due to the high bond rating of Dare County, USDA-Rural Development had requested that the water system for Stumpy Point be funded through a water and sewer district. Receipt of any monies through USDA-Rural Development is pending formation of a water and sewer district. If I can help in this matter, please advise.

Sincerely,
HOBBS, UPCHURCH & ASSOCIATES, P.A.

Eric T. Weatherly, P.E.
Division Manager

Cc: Bob Oreskovich
Dave Clawson
Al Cole

H:\DARE COUNTY\DR9806 STUMPY POINT USDA APPLICATION\WHEELER.DOC



COUNTY OF DARE

MANTEO, NORTH CAROLINA 27954

DONNIE ROSS
SUPERINTENDENT
SKYCO WATER PLANT

ROUTE 1, BOX 1690
PHONE (919) 473-1101
FAX - (919) 473-6273
EXTENSION 290

Interoffice memorandum

Date: December 16, 1998
To: Bob Oreskovich, Water Director
From: Donnie Ross, Skyco Plant Superintendent
CC: Randy McPhee, Assistant Water Director
Eric Weatherly, Hobbs, Upchurch & Associates
Subject: Stumpy Point Bacteriological Results

Listed below are the final Bacteriological Results from the Stumpy Point sampling. These are from every fourth house or as close as a sampling point was available. Every fourth house was requested by the grant agency. For every house that fell fourth that could not be sampled a detailed explanation is attached to this memo.

30 Samples Collected 18 Negative 12 Positive

- 1) Congregational Holiness Church #100 negative
- 2) Joe & Tammy Payne #112 positive
- 3) Oliver Payne #122 positive
- 4) Melba Hooper #133 positive
- 5) Henry Christner #143 positive
- 6) Almey Gray Sr. #153 positive
- 7) Veronica End #157 negative
- 8) John Blackman #163 negative

LAND OF BEGINNINGS

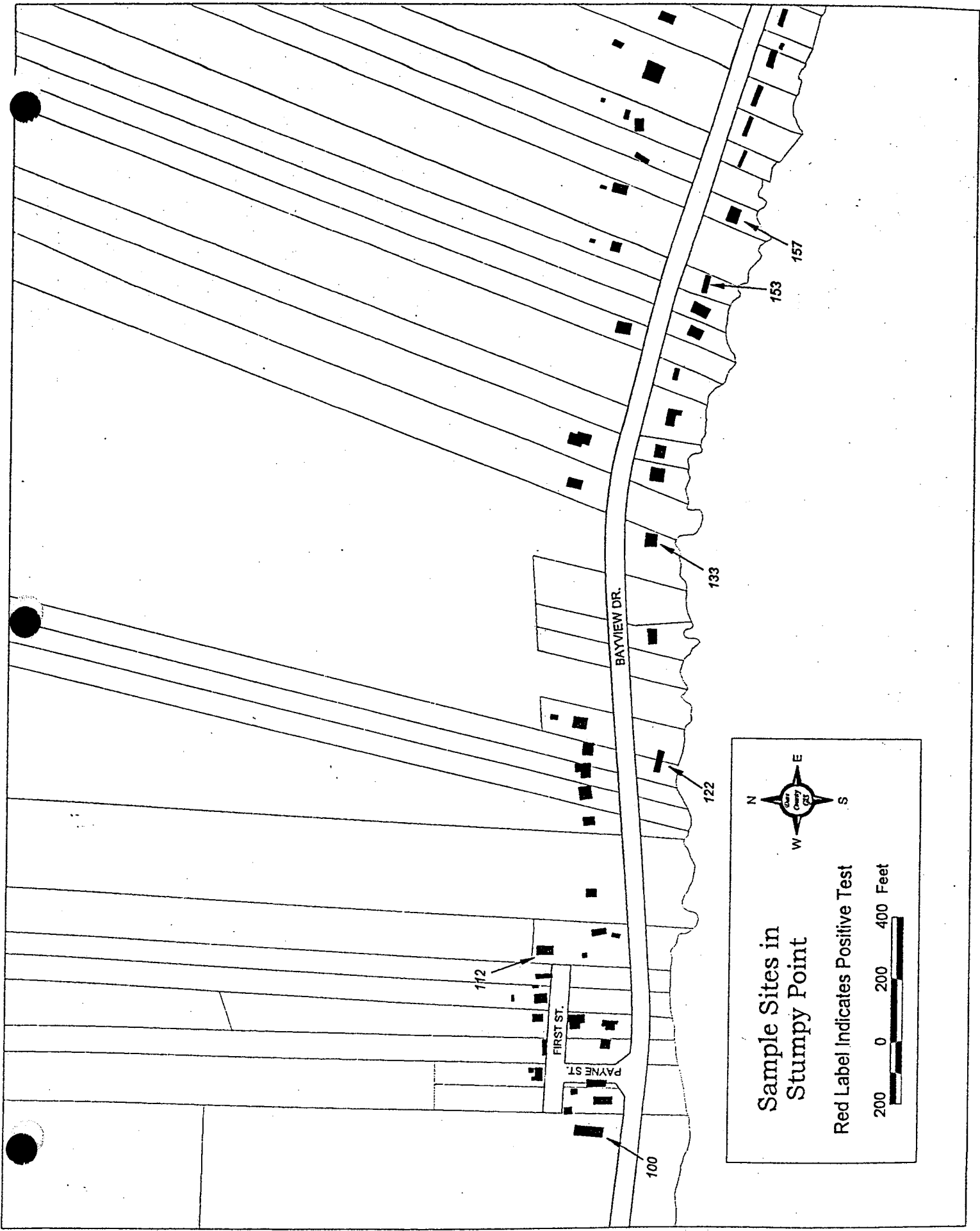
PRINTED ON RECYCLED PAPER

- 9) *Fran Altman* #167 *positive*
- 10) *David Brinn* #177 *positive*
- 11) *Carson Meekins* #180 *negative*
- 12) *Wilma Midgett* #184 *negative*
- 13) *James & Ola Meekins* #192 *negative*
- 14) *Roger Sears* #195 *negative*
- 15) *Ralph O'Neal* #208 *positive*
- 16) *Jeff Griffith* #212 *positive*
- 17) *Dickie Meekins* #215 *negative*
- 18) *Allen Lockany* #219 *negative*
- 19) *Laura Venutti* #232 *negative*
- 20) *Jasper Hooper* #232 *negative*
- 21) *Lori Rosser* #252 *positive*
- 22) *Shiloh Methodist Church* #256 *negative*
- 23) *Milton Hooper* #270 *negative*
- 24) *Laurie Holenchick* #275 *negative*
- 25) *Jeff Best* #277 *positive*
- 26) *Roger Best* #281 *negative*
- 27) *Hall* #296 *negative*
- 28) *Calvin Gibbs* #310 *negative*
- 29) *Michael Gray* #309 *negative*
- 30) *Fishermans Point* #317 *positive*

STUMPY POINT WELL SAMPLING INFORMATION

- 1) 100 Congregational Holiness Church
- 2) 112 Joe & Tammy Payne
- 3) 120 Water Softener connected directly to pump. Could not collect sample without water going through softener first. Sample was collected from 122, Oliver Payne
- 4) 133 Melba Hooper
- 5) 141 No outside spigot at this location. No one home to let me collect one from inside the house. Sample was collected from 143, Henry Christner
- 6) 151 No one home. No outside spigot to collect sample from. Sample was collected from 153, Almey Gray Sr.
- 7) 157 Veronica End
- 8) 163 John Blackman
- 9) 164 Old Trailer with no power hooked up to it at this time. Sample was collected from 167, Fran Altman
- 10) 177 David Brinn
- 11) 180 Carson Meekins
- 12) 184 Wilma Midgett
- 13) 190 No one home and no outside spigot. Sample was collected from 192, James & Ola Meekins
- 14) 195 Roger Sears
- 15) 206 Old trailer that nobody seems to be living in. Has a electric meter. Water pump house is open and pump does not look like it has been used for awhile. Sample was collected from 208, Ralph O'neal
- 16) 212 Jeff Griffith
- 17) 215 Dickie Meekins
- 18) 219 Allen Lockany
- 19) 228 No one lives in this house and no water is available. 230 No one home and no outside spigot available. Sample was collected from 232 Laura Venutti
- 20) 242 Old house that looks like its being renovated. No pump at house. 248 No one home and no outside spigot available. Sample was collected from 250 Jasper Hooper. He also shares well with 248
- 21) 249 Volunteer Fire Department No water to building. Sample was collected from 252, Lori Rosser
- 22) 256 Shiloh Methodist Church
- 23) 270 Milton Hooper
- 24) 273 Empty Lot. Sample was collected from 275, Laurie Holenckick
- 25) 277 Jeff Best

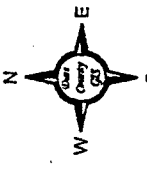
- 25) 281 Roger Best
- 26) 296 Hall
- 28) 308 This resident does not want the water system and would not allow us to collect a sample. Sample was collected from 310, Calvin Gibbs
- 29) 297 No water at outside spigots. No one home at this location. Could not find a pump. For sale sign on this property. Do not think any one lives at this location. 299 Storage building or workshop at this location. No outside spigots and no one available to get inside building. 306 No one home at this location. Could not look for outside spigot due to mean looking dog. Sample was collected from 309, Michael Gray
- 30) 313 Abandoned building. 315 House for sale. Could not find a pump. Seems to be hooked up to 317. Sample was collected from 317, Fisherman's Point.

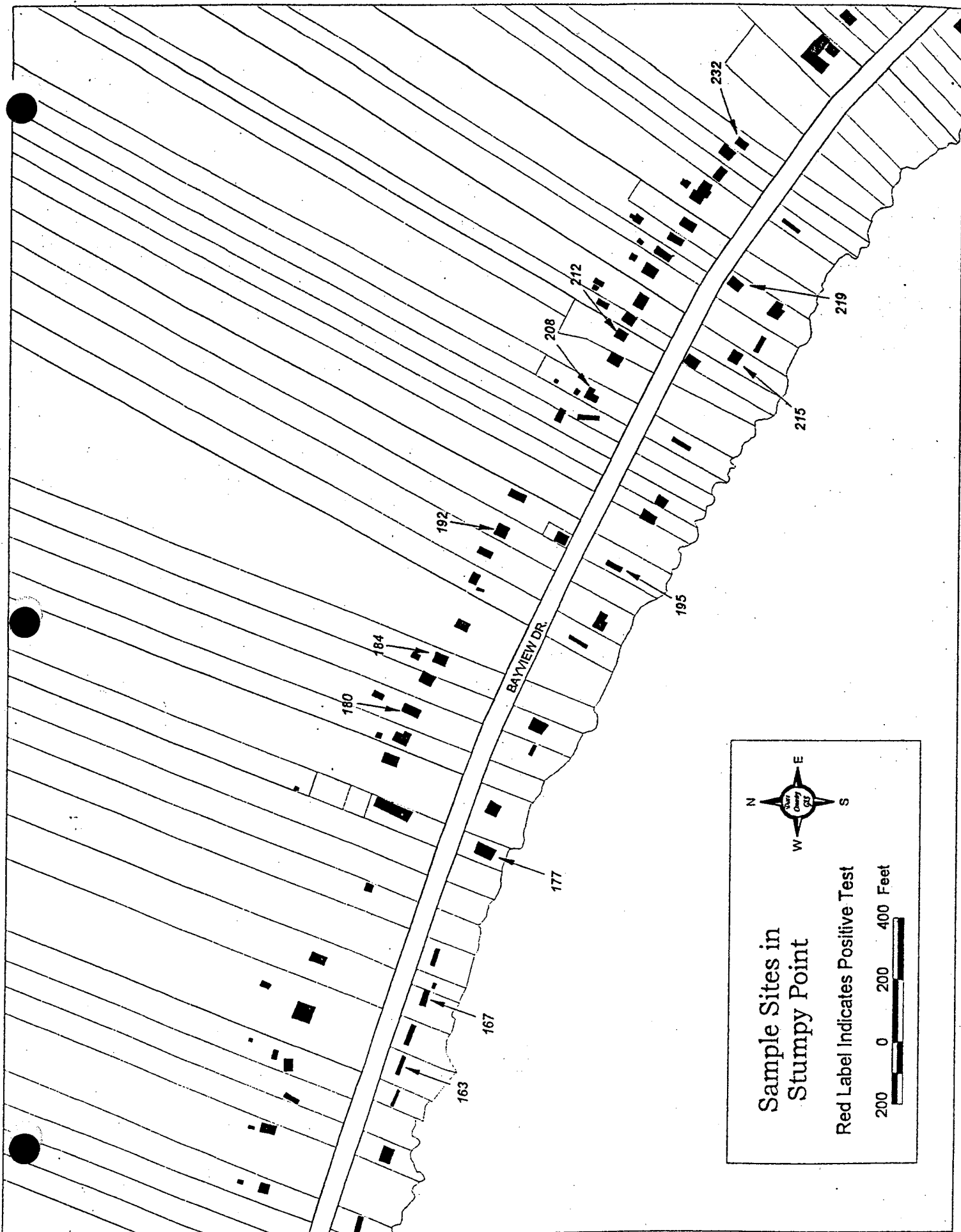


Sample Sites in
Stumpy Point

Red Label Indicates Positive Test

200 0 200 400 Feet

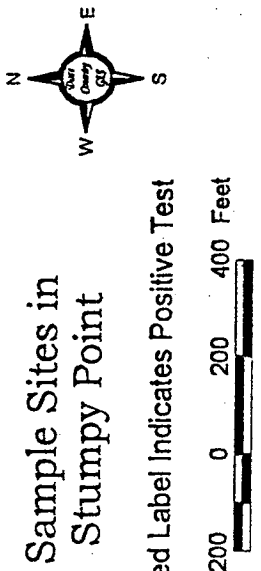




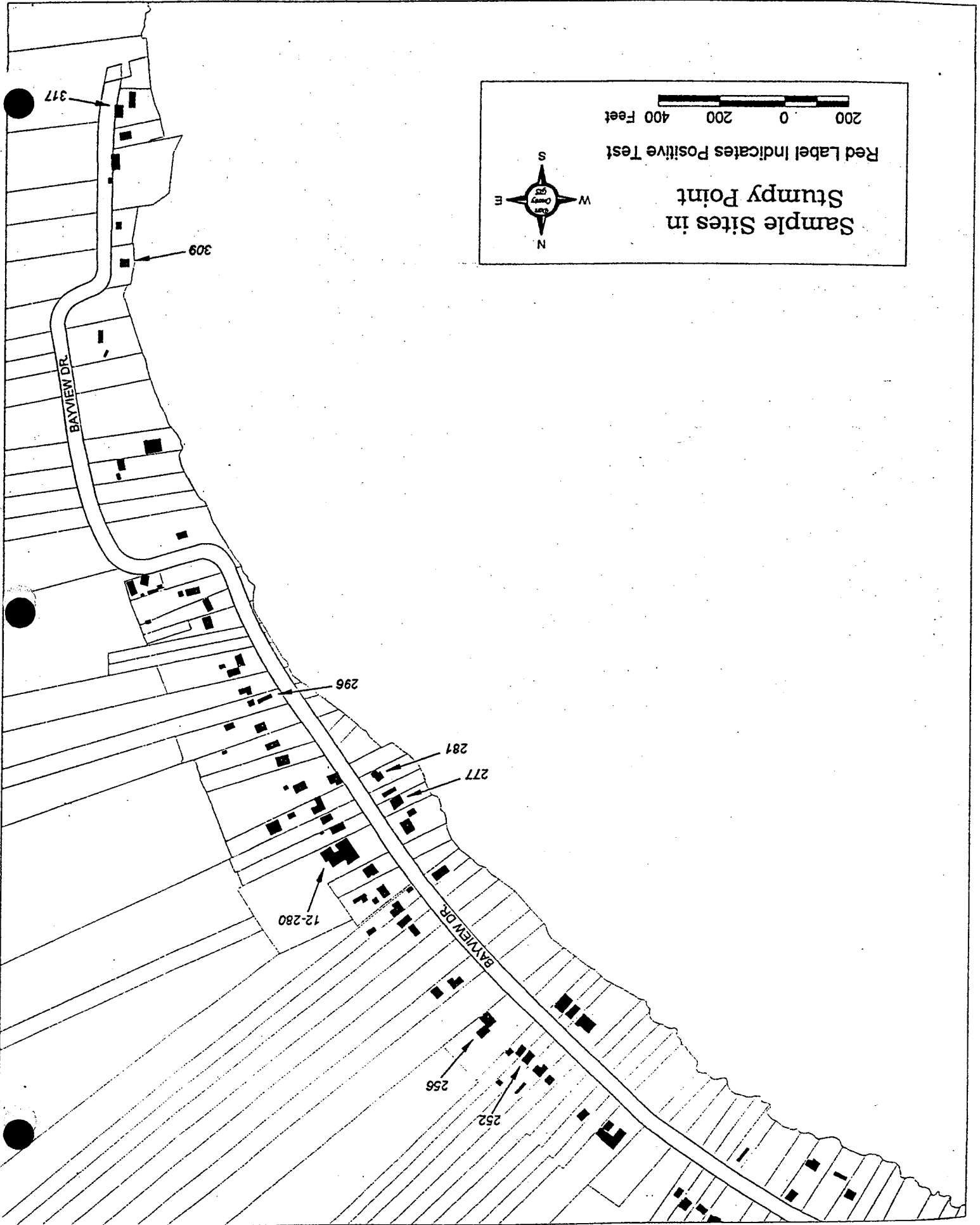
Sample Sites in
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200 0 200 400 Feet



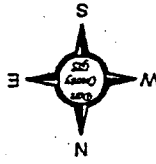
A compass rose with cardinal directions N, S, E, W and the text 'Bay County GIS' in the center. Below it is a scale bar with markings at 0, 200, and 400 feet.



Sample Sites in
Stumpy Point

Red Label Indicates Positive Test

200 0 200 400 Feet



317

309

296

281

277

12-280

256

252

BAYVIEW DR.

BAYVIEW DR.

Attachment O
USDA-RD Preapplication
And Related Information

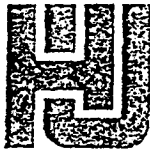
USDA – RURAL DEVELOPMENT APPLICATION

STUMPY POINT COMMUNITY WATER SYSTEM

GENERAL INFORMATION

An application was made in June of 1998 for USDA-Rural Development funds. We attempted to receive 75% grant based on health surveys. This failed, and our only other possibility was to receive 45% grant. However, even with a 45% grant and mandatory hook ups, the average water bill would still be \$44.63 per user. In addition, USDA-Rural Development has informed Dare County they would not fund the project due to their ability to receive funds from other sources. The only way USDA-Rural Development would provide funds for the project would be if a separate water and sewer district were formed.

It is not feasible to fund the project with USDA-Rural Development funds. No further action has been performed with this application.



Hobbs, Upchurch & Associates, P.A.
Consulting Engineers

2009 S. Croatan Highway • P.O. Drawer 429 • Kill Devil Hills, North Carolina 27948

November 30, 1998

H. Al Cole, Jr.
County Attorney
P.O. Drawer 1000
Manteo, NC 27954

RE: Stumpy Point Community Water System
HUA No.: DR9806 – USDA Application

Dear Al:

The USDA-Rural Development funding agency has informed me that Dare County has a bond rating of 81 which means bonds could be sold on the open market to finance the proposed Stumpy Point community water system. USDA-Rural development has informed me they can proceed with the funding application if a separate entity other than Dare County was formed. This could be either a district or an authority. It may be better to form a district in that the County Commissioners would serve as the governing body. It may also be better to form a water and sewer district if a sewer system was ever constructed at some time in the future.

Your assistance in this matter is greatly appreciated. If you have questions or if additional information is needed please do not hesitate to call.

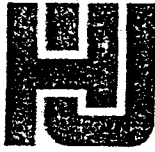
Sincerely,
HOBBS, UPCHURCH & ASSOCIATES, P.A.

Eric T. Weatherly, P.E.
Division Manager

ETW/hb

Cc: Bob Oreskovich, Director, Dare County Water Department
David Clawson, Finance Director

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Hobbs, Upchurch & Associates, P.A.

Consulting Engineers

2009 S. Croatan Highway • P.O. Drawer 429 • Kill Devil Hills, North Carolina 27948

February 10, 1999

Mr. Terry Wheeler
County Manager
Dare County
P.O. Drawer 1000
Manteo, NC 27954

RE: Stumpy Point Community Water System
HUA No.: DR9806 – USDA Application

Dear Terry:

I received the attached letter dated 02/03/99 from the USDA-Rural Development acknowledging that the health survey conducted did not document a sufficient number of residents with an imminent health hazard. However, we are still eligible for up to 45% grant from this funding agency. As you are aware, we have also applied for a Rural Center – Supplemental Grant Fund in which up to \$150,000 in grant may be received. We expect to hear from this application by the end of February. I also plan to apply for grant monies through the new Clean Water Bond package which was recently made available.

Due to the high bond rating of Dare County, USDA-Rural Development had requested that the water system for Stumpy Point be funded through a water and sewer district. Receipt of any monies through USDA-Rural Development is pending formation of a water and sewer district. If I can help in this matter, please advise.

Sincerely,
HOBBS, UPCHURCH & ASSOCIATES, P.A.

Eric T. Weatherly, P.E.
Division Manager

Cc: Bob Oreskovich
Dave Clawson
Al Cole

H:\DARE COUNTY\DR9806 STUMPY POINT USDA APPLICATION\WHEELER.DOC



United States
Department of
Agriculture

Rural
Development

104 Kehukee Park Road
Williamston, NC 27892
(252) 792-7197
(252) 809-0561 FAX
TDD (919) 873-2003

February 3, 1999

FEB 04 1999

Hobbs, Upchurch & Associates, P.A.
PO Drawer 429
Kill Devil Hills, NC 27948

Attn: Eric T. Weatherly, P.E.

Re: Stumpy Point Water Project

Dear Eric:

We have received the updated health survey that was completed for the Stumpy Point community and of course, based on this sampling, there was 30 samples collected with 12 positive samples observed which represents 40% and does not meet the required 51% to possibly qualify for a maximum 75% grant from USDA/RD.

Also, on November 25, 1998 we discussed the possibility of Dare County forming a water district for the Stumpy Point area or a sanitary district which could then apply as the interested entity. Have you had any conversations with county officials about this?

Please contact us about the project.

Sincerely,

A handwritten signature in black ink that reads "E. Reid Paul". The signature is written in a cursive, flowing style.

E. REID PAUL
Rural Development Specialist

Rural Development is an Equal Opportunity Lender.
Complaints of discrimination should be sent to:
Secretary of Agriculture, Washington, DC 20250

U.S. DEPARTMENT OF AGRICULTURE
APPLICATION FOR FEDERAL ASSISTANCE
(For construction)

Standard Form 424.2 (4/88)

APPLICATION FOR FEDERAL ASSISTANCE

1. TYPE OF SUBMISSION: Application <input type="checkbox"/> Construction <input type="checkbox"/> Non-Construction Preapplication <input checked="" type="checkbox"/> Construction <input type="checkbox"/> Non-Construction	2. DATE SUBMITTED	Applicant Identifier
	3. DATE RECEIVED BY STATE	State Application Identifier
	4. DATE RECEIVED BY FEDERAL AGENCY	Federal Identifier

5. APPLICANT INFORMATION

Legal Name: Dare County	Organizational Unit: County
Address (give city, county, state, and zip code): P.O. Drawer 1000 Manteo, NC 27954	Name and telephone number of the person to be contacted on matters involving this application (give area code): Terry Wheeler, County Manager (252) 473-1101

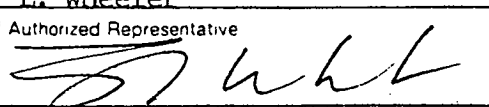
6. EMPLOYER IDENTIFICATION NUMBER (EIN): 5 6 - 6 0 0 0 2 9 3	7. TYPE OF APPLICANT: (enter appropriate letter in box) <input checked="" type="checkbox"/> B A. State B. County C. Municipal D. Township E. Interstate F. Intermunicipal G. Special District H. Independent School Dist. I. State Controlled Institution of Higher Learning J. Private University K. Indian Tribe L. Individual M. Profit Organization N. Other (Specify):
8. TYPE OF APPLICATION: <input checked="" type="checkbox"/> New <input type="checkbox"/> Continuation <input type="checkbox"/> Revision If Revision, enter appropriate letter(s) in box(es): <input type="checkbox"/> <input type="checkbox"/> A. Increase Award B. Decrease Award C. Increase Duration D. Decrease Duration Other (specify):	9. NAME OF FEDERAL AGENCY: USDA-Rural Development

10. CATALOG OF FEDERAL DOMESTIC ASSISTANCE NUMBER: 1 0 - 4 1 0 TITLE: Water and Waste Disposal Systems for Rural Communities	11. DESCRIPTIVE TITLE OF APPLICANT'S PROJECT: The project consists of a new water system for the Stumpy Point Community. The system consists of 18,100 feet of 6", 4" & 2" water mains, Reverse Osmosis Treatment and a 10,000 hydropneumatic storage tank with a potential of 113 users. It is proposed to acquire \$371,000 to upgrade the system for fire protection.
12. AREAS AFFECTED BY PROJECT (cities, counties, states, etc.): Stumpy Point Community Dare County	

13. PROPOSED PROJECT: Start Date: 11/98 Ending Date: 05/00	14. CONGRESSIONAL DISTRICTS OF: a. Applicant: 3rd b. Project: 3rd
-------------------------------------------------------------------------	--------------------------------------------------------------------------------

15. ESTIMATED FUNDING: <table border="1"> <tr><td>a. Federal</td><td>\$ 1,025,000</td><td>.00</td></tr> <tr><td>b. Applicant</td><td>\$</td><td>.00</td></tr> <tr><td>c. State</td><td>\$</td><td>.00</td></tr> <tr><td>d. Local</td><td>\$</td><td>.00</td></tr> <tr><td>e. Other</td><td>\$ 371,000</td><td>.00</td></tr> <tr><td>f. Program Income</td><td>\$ 1,396,000</td><td>.00</td></tr> <tr><td>g. TOTAL</td><td>\$</td><td>.00</td></tr> </table>	a. Federal	\$ 1,025,000	.00	b. Applicant	\$.00	c. State	\$.00	d. Local	\$.00	e. Other	\$ 371,000	.00	f. Program Income	\$ 1,396,000	.00	g. TOTAL	\$.00	16. IS APPLICATION SUBJECT TO REVIEW BY STATE EXECUTIVE ORDER 12372 PROCESS? a. YES. THIS PREAPPLICATION/APPLICATION WAS MADE AVAILABLE TO THE STATE EXECUTIVE ORDER 12372 PROCESS FOR REVIEW ON: DATE _____ b. NO. <input type="checkbox"/> PROGRAM IS NOT COVERED BY E.O. 12372 <input type="checkbox"/> OR PROGRAM HAS NOT BEEN SELECTED BY STATE FOR REVIEW
a. Federal	\$ 1,025,000	.00																				
b. Applicant	\$.00																				
c. State	\$.00																				
d. Local	\$.00																				
e. Other	\$ 371,000	.00																				
f. Program Income	\$ 1,396,000	.00																				
g. TOTAL	\$.00																				
	17. IS THE APPLICANT DELINQUENT ON ANY FEDERAL DEBT? <input type="checkbox"/> Yes If "Yes," attach an explanation. <input checked="" type="checkbox"/> No																					

18. TO THE BEST OF MY KNOWLEDGE AND BELIEF, ALL DATA IN THIS APPLICATION/PREAPPLICATION ARE TRUE AND CORRECT, THE DOCUMENT HAS BEEN DULY AUTHORIZED BY THE GOVERNING BODY OF THE APPLICANT AND THE APPLICANT WILL COMPLY WITH THE ATTACHED ASSURANCES IF THE ASSISTANCE IS AWARDED

a. Typed Name of Authorized Representative Terry L. Wheeler	b. Title County Manager	c. Telephone number (252) 473-1101
d. Signature of Authorized Representative 		e. Date Signed 6/24/98

INSTRUCTIONS FOR THE SF 424

This is a standard form used by applicants as a required facesheet for preapplications and applications submitted for Federal assistance. It will be used by Federal agencies to obtain applicant certification that States which have established a review and comment procedure in response to Executive Order 12372 and have selected the program to be included in their process, have been given an opportunity to review the applicant's submission.

- | Item: | Entry: | Item: | Entry: |
|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. | Self-explanatory. | 12. | List only the largest political entities affected (e.g., State, counties, cities). |
| 2. | Date application submitted to Federal agency (or State if applicable) & applicant's control number (if applicable). | 13. | Self-explanatory. |
| 3. | State use only (if applicable). | 14. | List the applicant's Congressional District and any District(s) affected by the program or project. |
| 4. | If this application is to continue or revise an existing award, enter present Federal identifier number. If for a new project, leave blank. | 15. | Amount requested or to be contributed during the first funding/budget period by each contributor. Value of in-kind contributions should be included on appropriate lines as applicable. If the action will result in a dollar change to an existing award, indicate <u>only</u> the amount of the change. For decreases, enclose the amounts in parentheses. If both basic and supplemental amounts are included, show breakdown on an attached sheet. For multiple program funding, use totals and show breakdown using same categories as item 15. |
| 5. | Legal name of applicant, name of primary organizational unit which will undertake the assistance activity, complete address of the applicant, and name and telephone number of the person to contact on matters related to this application. | 16. | Applicants should contact the State Single Point of Contact (SPOC) for Federal Executive Order 12372 to determine whether the application is subject to the State intergovernmental review process. |
| 6. | Enter Employer Identification Number (EIN) as assigned by the Internal Revenue Service. | 17. | This question applies to the applicant organization, not the person who signs as the authorized representative. Categories of debt include delinquent audit disallowances, loans and taxes. |
| 7. | Enter the appropriate letter in the space provided. | 18. | To be signed by the authorized representative of the applicant. A copy of the governing body's authorization for you to sign this application as official representative must be on file in the applicant's office. (Certain Federal agencies may require that this authorization be submitted as part of the application.) |
| 8. | Check appropriate box and enter appropriate letter(s) in the space(s) provided:
— "New" means a new assistance award.
— "Continuation" means an extension for an additional funding/budget period for a project with a projected completion date.
— "Revision" means any change in the Federal Government's financial obligation or contingent liability from an existing obligation. | | |
| 9. | Name of Federal agency from which assistance is being requested with this application. | | |
| 10. | Use the Catalog of Federal Domestic Assistance number and title of the program under which assistance is requested. | | |
| 11. | Enter a brief descriptive title of the project. If more than one program is involved, you should append an explanation on a separate sheet. If appropriate (e.g., construction or real property projects), attach a map showing project location. For preapplications, use a separate sheet to provide a summary description of this project. | | |

BUDGET INFORMATION — Construction Programs

NOTE: Certain Federal assistance programs require additional computations to arrive at the Federal share of project costs eligible for participation. If such is the case you will be notified.

COST CLASSIFICATION	a. Total Cost	b. Costs Not Allowable for Participation	c. Total Allowable Costs (Column a-b)
1. Administrative and legal expenses	\$ 20,000	\$ 0	\$ 20,000
2. Land, structures, rights-of-way, appraisals, etc.	\$ 0	\$ 0	\$ 0
3. Relocation expenses and payments	\$ 0	\$ 0	\$ 0
4. Architectural and engineering fees	\$ 71,600	\$ 17,435	\$ 54,165
5. Other architectural and engineering fees	\$ 92,500	\$ 0	\$ 92,500
6. Project inspection fees	\$ 75,000	\$ 6,400	\$ 68,600
7. Site work	\$ 0	\$ 0	\$ 0
8. Demolition and removal	\$ 0	\$ 0	\$ 0
9. Construction	\$ 1,000,000	\$ 313,500	\$ 686,500
10. Equipment	\$ 10,000	\$ 0	\$ 10,000
11. Miscellaneous	\$ 10,000	\$ 0	\$ 10,000
Biological Survey = \$10,000	66,455	17,655	48,800
Due Year Interest @ 5%			
12. SUBTOTAL	\$ 1,345,555	\$ 354,990	\$ 990,565
13. Contingencies (sum of lines 1-11)	\$ 50,000	\$ 15,675	\$ 34,325
14. SUBTOTAL	\$ 1,395,555	\$ 370,665	\$ 1,024,890
15. Project (program) income	\$ 0	\$ 0	\$ 0
16. TOTAL PROJECT COSTS (subtract #15 from # 14)	\$ 1,396,000	\$ 371,000	\$ 1,025,000
FEDERAL FUNDING			
17. Federal assistance requested, calculate as follows: Enter eligible costs from line 16c Multiply X _____%			
(Consult Federal agency for Federal percentage share). Enter the resulting Federal share.			

INSTRUCTIONS FOR THE SF-424C

This sheet is to be used for the following types of applications: (1) "New" (means a new [previously unfunded] assistance award); (2) "Continuation" (means funding in a succeeding budget period which stemmed from a prior agreement to fund); and (3) "Revised" (means any changes in the Federal government's financial obligations or contingent liability from an existing obligation). If there is no change in the award amount there is no need to complete this form. Certain Federal agencies may require only an explanatory letter to effect minor (no cost) changes. If you have questions please contact the Federal agency.

Column a. — If this is an application for a "New" project, enter the total estimated cost of each of the items listed on lines 1 through 16 (as applicable) under "COST CLASSIFICATIONS."

If this application entails a change to an existing award, enter the eligible amounts *approved under the previous award* for the items under "COST CLASSIFICATION."

Column b. — If this is an application for a "New" project, enter that portion of the cost of each item in Column a. which is *not* allowable for Federal assistance. Contact the Federal agency for assistance in determining the allowability of specific costs.

If this application entails a change to an existing award, enter the adjustment [+ or (-)] to the previously approved costs (from column a.) reflected in this application.

Column c. — This is the net of lines 1 through 16 in columns "a." and "b."

Line 1 — Enter estimated amounts needed to cover administrative expenses. Do not include costs which are related to the normal functions of government. Allowable legal costs are generally only those associated with the purchase of land which is allowable for Federal participation and certain services in support of construction of the project.

Line 2 — Enter estimated site and right(s)-of-way acquisition costs (this includes purchase, lease, and/or easements).

Line 3 — Enter estimated costs related to relocation advisory assistance, replacement housing, relocation payments to displaced persons and businesses, etc.

Line 4 — Enter estimated basic engineering fees related to construction (this includes start-up services and preparation of project performance work plan).

Line 5 — Enter estimated engineering costs, such as surveys, tests, soil borings, etc.

Line 6 — Enter estimated engineering inspection costs.

Line 7 — Enter estimated costs of site preparation and restoration which are not included in the basic construction contract.

Line 9 — Enter estimated cost of the construction contract.

Line 10 — Enter estimated cost of office, shop, laboratory, safety equipment, etc. to be used at the facility, if such costs are not included in the construction contract.

Line 11 — Enter estimated miscellaneous costs.

Line 12 — Total of items 1 through 11.

Line 13 — Enter estimated contingency costs. (Consult the Federal agency for the percentage of the estimated construction cost to use.)

Line 14 — Enter the total of lines 12 and 13.

Line 15 — Enter estimated program income to be earned during the grant period, e.g., salvaged materials, etc.

Line 16 — Subtract line 15 from line 14.

Item 17 — This block is for the computation of the Federal share. Multiply the total allowable project costs from line 16, column "c." by the Federal percentage share (this may be up to 100 percent; consult Federal agency for Federal percentage share) and enter the product on line 17.

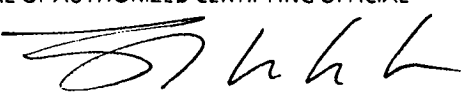
ASSURANCES — CONSTRUCTION PROGRAMS

Note: Certain of these assurances may not be applicable to your project or program, If you have questions, please contact the Awarding Agency. Further, certain federal assistance awarding agencies may require applicants to certify to additional assurances. If such is the case, you will be notified.

As the duly authorized representative of the applicant I certify that the applicant:

1. Has the legal authority to apply for Federal assistance, and the institutional, managerial and financial capability (including funds sufficient to pay the non-Federal share of project costs) to ensure proper planning, management and completion of the project described in this application.
2. Will give the awarding agency, the Comptroller General of the United States, and if appropriate, the State, through any authorized representative, access to and the right to examine all records, books, papers, or documents related to the assistance; and will establish a proper accounting system in accordance with generally accepted accounting standards or agency directives.
3. Will not dispose of, modify the use of, or change the terms of the real property title, or other interest in the site and facilities without permission and instructions from the awarding agency. Will record the Federal interest in the title of real property in accordance with awarding agency directives and will include a covenant in the title of real property acquired in whole or in part with Federal assistance funds to assure nondiscrimination during the useful life of the project.
4. Will comply with the requirements of the assistance awarding agency with regard to the drafting, review and approval of construction plans and specifications.
5. Will provide and maintain competent and adequate engineering supervision at the construction site to ensure that the complete work conforms with the approved plans and specifications and will furnish progress reports and such other information as may be required by the assistance awarding agency or State.
6. Will initiate and complete the work within the applicable time frame after receipt of approval of the awarding agency.
7. Will establish safeguards to prohibit employees from using their positions for a purpose that constitutes or presents the appearance of personal or organizational conflict of interest, or personal gain.
8. Will comply with the Intergovernmental Personnel Act of 1970 (42 U.S.C. §§ 4728-4763) relating to prescribed standards for merit systems for programs funded under one of the nineteen statutes or regulations specified in Appendix A of OPM's Standards for a Merit System of Personnel Administration (5 C.F.R. 900, Subpart F).
9. Will comply with the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. §§ 4801 et seq.) which prohibits the use of lead based paint in construction or rehabilitation of residence structures.
10. Will comply with all Federal statutes relating to non-discrimination. These include but are not limited to: (a) Title VI of the Civil Rights Act of 1964 (P.L. 88-352) which prohibits discrimination on the basis of race, color or national origin; (b) Title IX of the Education Amendments of 1972, as amended (20 U.S.C. §§ 1681-1683, and 1685-1686) which prohibits discrimination on the basis of sex; (c) Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. § 794) which prohibit discrimination on the basis of handicaps; (d) the Age Discrimination Act of 1975, as amended (42 U.S.C. §§ 6101-6107) which prohibits discrimination on the basis of age; (e) the Drug Abuse Office and Treatment Act of 1972 (P.L. 93-255), as amended, relating to non-discrimination on the basis of drug abuse; (f) the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970 (P.L. 91-616), as amended, relating to nondiscrimination on the basis of alcohol abuse or alcoholism; (g) §§ 523 and 527 of the Public Health Service Act of 1912 (42 U.S.C. 290 dd-3 and 290 ee-3), as amended, relating to confidentiality of alcohol and drug abuse patient records; (h) Title VIII of the Civil Rights Act of 1968 (42 U.S.C. § 3601 et seq.), as amended, relating to non-discrimination in the sale, rental or financing of housing; (i) any other non-discrimination provisions in the specific statute(s) under which application for Federal assistance is being made, and (j) the requirements on any other non-discrimination Statute(s) which may apply to the application.

11. Will comply, or has already complied, with the requirements of Titles II and III of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646) which provides for fair and equitable treatment of persons displaced or whose property is acquired as a result of Federal and federally assisted programs. These requirements apply to all interests in real property acquired for project purposes regardless of Federal participation in purchases.
12. Will comply with the provisions of the Hatch Act (5 U.S.C. §§ 1501-1508 and 7324-7328) which limit the political activities of employees whose principal employment activities are funded in whole or in part with Federal funds.
13. Will comply, as applicable, with the provisions of the Davis-Bacon Act (40 U.S.C. §§ 276a to 276a-7), the Copeland Act (40 U.S.C. § 276c and 18 U.S.C. § 874), the Contract Work Hours and Safety Standards Act (40 U.S. §§ 327-333) regarding labor standards for federally assisted construction subagreements.
14. Will comply with the flood insurance purchase requirements of Section 102(a) of the Flood Disaster Protection Act of 1973 (P.L. 93-234) which requires recipients in a special flood hazard area to participate in the program and to purchase flood insurance if the total cost of insurable construction and acquisition is \$10,000 or more.
15. Will comply with environmental standards which may be prescribed pursuant to the following: (a) institution of environmental quality control measures under the National Environmental Policy Act of 1969 (P.L. 91-190) and Executive Order (EO) 11514; (b) Environmental Policy Act of 1969 (P.L. 91-190) and Executive Order (EO) 11514; (c) notification of violating facilities pursuant to EO 11738; (d) protection of wetlands pursuant to EO 11990; (e) evaluation of flood hazards in floodplains in accordance with EO 11988; (f) assurance of project consistency with the approved State management program developed under the Coastal Zone Management Act of 1972 (16 U.S.C. §§ 1451 et seq.); (g) conformity of Federal actions to State (Clean Air) Implementation Plans under Section 176(c) of the Clean Air Act of 1955, as amended (42 U.S.C. § 7401 et seq.); (h) protection of underground sources of drinking water under the Safe Drinking Water Act of 1974, as amended, (P.L. 93-523); and (i) protection of endangered species under the Endangered Species Act of 1973, as amended, (P.L. 93-205).
16. Will comply with the Wild and Scenic Rivers Act of 1968 (16 U.S.C. §§ 1271 et seq.) related to protecting components or potential components of the national wild and scenic rivers system.
17. Will assist the awarding agency in assuring compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. 470), EO 11593 (identification and preservation of historic properties), and the Archaeological and Historic Preservation Act of 1974 (16 U.S.C. 469a-1 et seq.).
18. Will cause to be performed the required financial and compliance audits in accordance with the Single Audit Act of 1984.
19. Will comply with all applicable requirements of all other Federal laws, Executive Orders, regulations and policies governing this program.

SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL 	TITLE Terry L. Wheeler, County Manager Dare County
APPLICANT ORGANIZATION County of Dare, N.C.	DATE SUBMITTED 6/27/98

Project Narrative

Water System to Serve the Stumpy Point Community

The project will consist of a new water system to serve the Stumpy Point Community in Dare County, N.C. There are approximately 118 residences and small businesses in the area with poor well water quality. A test well has determined the new water system will require a Reverse Osmosis Water Treatment Plant rated at 50,000 gpd expandable to 75,000 gpd. The distribution system will consist of 18,100 feet of water main. USDA-RD will not fund systems designed for fire protection, therefore the system would consist of 6", 4" and 2" water mains with a 10,000 gallon hydropneumatic storage tank. The Owners intend to seek additional funds to provide fire protection including 8" and 6" water mains with fire hydrants every 2,000' and a 75,000 gallon elevated storage tank. Estimated cost of the system without fire protection is \$1,025,000 and \$1,396,000 with fire protection.

Attachment P
Engineering Agreement for
USDA-Rural Development Application

AGREEMENT FOR ENGINEERING SERVICES

AS PREPARED FOR THE USDA-RURAL DEVELOPMENT

FUND APPLICATION

Attached for your review is a copy of the engineering agreement for this project that was executed as required for the USDA-Rural Development fund application. This engineering agreement is presented for information purposes only and justification of engineering fees requested for the High Unit Cost Grant application. Please note the cover letter to the engineering agreement dated July 2, 1998 stipulating that the engineering agreement may be nullified if funds are not received from USDA-Rural Development.



Hobbs, Upchurch & Associates, P.A.

Consulting Engineers

2009 Croatan Highway • P.O. Drawer 429 • Kill Devil Hills, North Carolina 27948

July 2, 1998

Mr. Terry L. Wheeler
County Manager
Dare County
P.O. Drawer 1000
Manteo, NC 27954

RE: USDA-Rural Development Fund Application
Agreement for Engineering Services

Dear Terry:

The Agreement for Engineering Services (USDA-Rural Development Form RD 1942-19), between Dare County and Hobbs, Upchurch & Associates, may be nullified if funds are not received from USDA-Rural Development.

Sincerely,
HOBBS, UPCHURCH & ASSOCIATES, P.A.

Eric T. Weatherly, P.E.
Division Manager

ETW/hb

C:\JOB FILES\DARE COUNTY\DR9706 STUMPY POINT WATER STUDY\PRELIMINARY ENGINEERING
REPORT\WHEELER.ENGRSVCS.070298.DOC

Kill Devil Hills, NC • Telephone 919-441-3913 • FAX 919-441-2100 • e-mail: hua-kdh@beachlink.com
Southern Pines • Myrtle Beach • Raleigh

AGREEMENT FOR ENGINEERING SERVICES

This Agreement, made this _____ day of _____, 19 _____,
by and between Dare County, hereafter referred to as the OWNER,
and Hobbs, Upchurch & Associates, P.A., hereinafter referred to as the ENGINEER:

THE OWNER intends to construct a Community Water System to Serve

Stumpy Point in Dare County, State of North Carolina
which may be paid for in part with financial assistance from the United States of America acting through Rural Development of the United States Department of Agriculture, pursuant to the consolidated Farm and Rural Development Act, (7 U.S.C. 1921 et seq.) and for which the ENGINEER agrees to perform the various professional engineering services for the design and construction of said system.

WITNESSETH:

That for and in consideration of the mutual covenants and promises between the parties hereto, it is hereby agreed:

SECTION A - ENGINEERING SERVICES

The ENGINEER shall furnish engineering services as follows:

1. The ENGINEER will conduct preliminary investigations, prepare preliminary drawings, provide a preliminary itemized list of probable construction costs effective as of the date of the preliminary report, and submit a preliminary engineering report following Rural Development instructions and guides.
2. The ENGINEER will furnish 10 copies of the preliminary engineering report, and layout maps to the OWNER.
3. The ENGINEER will attend conferences with the OWNER, representatives of Rural Development, or other interested parties as may be reasonably necessary.
4. After the preliminary engineering report has been reviewed and approved by the OWNER and by Rural Development and the OWNER directs the ENGINEER to proceed, the ENGINEER will perform the necessary design surveys, accomplish the detailed design of the project, prepare construction drawings, specifications and contract documents, and prepare a final cost estimate based on the final design for the entire system. It is also understood that if subsurface explorations (such as borings, soil tests, rock soundings and the like) are required, the ENGINEER will furnish coordination of said explorations without additional charge, but the costs incident to such explorations shall be paid for by the OWNER as set out in Section D hereof.
5. The contract documents furnished by the ENGINEER under Section A-4 shall utilize Rural Development-endorsed construction contract documents, including Rural Development General Conditions, Contract Change Orders, and partial payment estimates. All of these documents shall be subject to Rural Development approval. Copies of guide contract documents may be obtained from Rural Development.
6. Prior to the advertisement for bids, the ENGINEER will provide for each construction contract, not to exceed 10 copies of detailed drawings, specifications, and contract documents for use by the OWNER, appropriate Federal, State, and local agencies from whom approval of the project must be obtained. The cost of such drawings, specifications, and contract documents shall be included in the basic compensation paid to the ENGINEER.
7. The ENGINEER will furnish additional copies of the drawings, specifications and contract documents as required by prospective bidders, material suppliers, and other interested parties, but may charge them for the reasonable cost of such copies. Upon award of each contract, the ENGINEER will furnish to the OWNER five sets of the drawings, specifications and contract documents for execution. The cost of these sets shall be included in the basic compensation paid to the ENGINEER. Original documents, survey notes, tracings, and the like, except those furnished to the ENGINEER by the OWNER, are and shall remain the property of the ENGINEER.

Public reporting burden for this collection of information is estimated to average 4 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to U.S. Department of Agriculture, Clearance Officer, STOP 7602, 1400 Independence Avenue, S.W., Washington, D.C. 20250-7602. Please DO NOT RETURN this form to this address. Forward to the local USDA office only. You are not required to respond to this collection of information unless it displays a currently valid OMB control number.

8. The drawings prepared by the ENGINEER under the provisions of Section A-4 above shall be in sufficient detail to permit the actual location of the proposed improvements on the ground. The ENGINEER shall prepare and furnish to the OWNER without any additional compensation, three copies of a map(s) showing the general location of needed construction easements and permanent easements and the land to be acquired. Property surveys, property plats, property descriptions, abstracting and negotiations for land rights shall be accomplished by the OWNER, unless the OWNER requests, and the ENGINEER agrees to provide those services. In the event the ENGINEER is requested to provide such services, the ENGINEER shall be additionally compensated as set out in Section D hereof.
9. The ENGINEER will attend the bid opening and tabulate the bid proposals, make an analysis of the bids, and make recommendations for awarding contracts for construction.
10. The ENGINEER will review and approve, for conformance with the design concept, any necessary shop and working drawings furnished by contractors.
11. The ENGINEER will interpret the intent of the drawings and specifications to protect the OWNER against defects and deficiencies in construction on the part of the contractors. The ENGINEER will not, however, guarantee the performance by any contractor.
12. The ENGINEER will establish baselines for locating the work together with a suitable number of bench marks adjacent to the work as shown in the contract documents.
13. The ENGINEER will provide general engineering review of the work of the contractors as construction progresses to ascertain that the contractor is conforming with the design concept.
14. Unless notified by the OWNER in writing that the OWNER will provide for resident inspection, the ENGINEER will provide resident construction inspection. The ENGINEER'S undertaking hereunder shall not relieve the contractor of contractor's obligation to perform the work in conformity with the drawings and specifications and in a workmanlike manner; shall not make the ENGINEER an insurer of the contractor's performance; and shall not impose upon the ENGINEER any obligation to see that the work is performed in a safe manner.
15. The ENGINEER will cooperate and work closely with Rural Development representatives.
16. The ENGINEER will review the contractor's applications for progress and final payment and, when approved, submit same to the OWNER for payment.
17. The ENGINEER will prepare necessary contract change orders for approval of the OWNER, Rural Development, and others on a timely basis.
18. The ENGINEER will make a final review prior to the issuance of the statement of substantial completion of all construction and submit a written report to the OWNER and Rural Development. Prior to submitting the final pay estimate, the ENGINEER shall submit a statement of completion to and obtain the written acceptance of the facility from the OWNER and Rural Development.
19. The ENGINEER will provide the OWNER with one set of reproducible record (as-built) drawings, and two sets of prints at no additional cost to the OWNER. Such drawings will be based upon construction records provided by the contractor during construction and reviewed by the resident inspector and from the resident inspector's construction data.
20. If State statutes require notices and advertisements of final payment, the ENGINEER shall assist in their preparation.
21. The ENGINEER will be available to furnish engineering services and consultations necessary to correct unforeseen project operation difficulties for a period of one year after the date of statement of substantial completion of the facility. This service will include instruction of the OWNER in initial project operation and maintenance but will not include supervision of normal operation of the system. Such consultation and advice shall be furnished without additional charge except for travel and subsistence costs. The ENGINEER will assist the OWNER in performing a review of the project during the 11th month after the date of the certificate of substantial completion.
22. The ENGINEER further agrees to obtain and maintain, at the ENGINEER'S expense, such insurance as will protect the ENGINEER from claims under the Workman's Compensation Act and such comprehensive general liability insurance as will protect the OWNER and the ENGINEER from all claims for bodily injury, death, or property damage which may arise from the performance by the ENGINEER or by the ENGINEER'S employees of the ENGINEER'S functions and services required under this Agreement.

23. The services called for in the Section A-1 and A-2 of this Agreement shall be completed and the report submitted within 30 calendar days from the date of authorization to proceed. After acceptance by the OWNER and Rural Development of the Preliminary Engineering Report and upon written authorization from the OWNER, the ENGINEER will complete final plans, specifications and contract documents and submit for approval of the OWNER, Rural Development and all State regulatory agencies within 270 calendar days from the date of authorization unless otherwise agreed to by both parties.

If the above is not accomplished within the time period specified, this Agreement may be terminated by the OWNER. The time for completion will be extended by the OWNER for a reasonable time if completion is delayed due to unforeseeable causes beyond the control and without the fault or negligence of the ENGINEER.

SECTION B - COMPENSATION FOR ENGINEERING SERVICES

1. The OWNER shall compensate the ENGINEER for preliminary engineering services in the sum of Ten Thousand Dollars (\$10,000.00) after the review and approval of the preliminary engineering report by the OWNER and Rural Development.

2. The OWNER shall compensate the ENGINEER for design and contract administration engineering services in the amount of: (Select (a) or (b))

(a) _____ Dollars (\$ _____) or

(b) As shown in Attachment 1

When Attachment 1 is used to establish compensation for the design and contract administration services, the actual construction costs on which compensation is determined shall exclude legal fees, administrative costs, engineering fees, land rights, acquisition costs, water costs, and interest expense incurred during the construction period.

3. The compensation for preliminary engineering services, design and contract administration services shall be payable as follows:

(a) A sum which equals seventy percent (70%) of the total compensation payable under Section B-1 and 2, after completion and submission of the construction drawings, specifications, cost estimates, and contract documents, and the acceptance of the same by OWNER and Rural Development.

(b) A sum which, together with the compensation provided in Section B-3-(a) above, equals eighty percent (80%) of the compensation payable immediately after the construction contracts are awarded.

(c) A sum equal to fifteen percent (15%) of the compensation will be paid on a monthly basis for general engineering review of the contractor's work during the construction period on percentage ratios identical to those approved by the ENGINEER as a basis upon which to make partial payments to the contractor(s). However, payment under this paragraph and of such additional sums as are due the ENGINEER by reason of any necessary adjustments in the payment computations will be in an amount so that the aggregate of all sums paid to the ENGINEER will equal ninety-five (95%) of the compensation. A final payment to equal 100 percent shall be made when it is determined that all services required by this Agreement have been completed except for the services set forth in Section A-21 hereof.

SECTION C - COMPENSATION FOR RESIDENT INSPECTION
AS SET FORTH IN SECTION A-14

When the ENGINEER provides resident inspection, the ENGINEER will, prior to the preconstruction conference, submit a resume of the resident inspector's qualifications, anticipated duties and responsibilities for approval by the OWNER and Rural Development. The OWNER agrees to pay the ENGINEER for such services in accordance with the schedule set out in Attachment 1. The ENGINEER will render to OWNER for such services an itemized bill, once each month, for compensation for such services performed hereunder during such period, the same to be due and payable by the OWNER to the ENGINEER on or before the 10th day of the following period.

Under normal construction circumstances, and for the proposed construction period of 9 months ~~days~~, the cost of resident inspection is estimated to be \$ 75,000.00.

SECTION D - ADDITIONAL ENGINEERING SERVICES

In addition to the foregoing being performed, the following services may be provided UPON PRIOR WRITTEN AUTHORIZATION OF THE OWNER and written approval of Rural Development.

1. Site surveys for water treatment plants, sewage treatment works, dams, reservoirs, and other similar special surveys as may be required.
2. Laboratory tests, well tests, borings, specialized geological, soils, hydraulic or other studies recommended by the ENGINEER.
3. Property surveys, detailed description of sites, maps, drawings, or estimates related thereto; assistance in negotiating for land and easement rights.
4. Necessary data and filing maps for water rights, water adjudication, and litigation.
5. Redesigns ordered by the OWNER after final plans have been accepted by the OWNER and Rural Development, except redesigns to reduce the project cost to within the funds available.
6. Appearances before courts or boards on matters of litigation or hearings related to the project.
7. Preparation of environment impact assessments or environmental impact statements.
8. Performance of detailed staking necessary for construction of the project in excess of the control staking set forth in Section A-12.
9. The ENGINEER further agrees to provide the operation and maintenance manual for facilities when required for

\$ 5,000.00

Payment for the services specified in this Section D shall be as agreed in writing between the OWNER and approved by Rural Development prior to commencement of the work. Barring unforeseen circumstances, such payment is estimated not to exceed

\$ 82,500.00

. The ENGINEER will render to OWNER for such services an itemized bill, separate from any other billing, once each month, for compensation for services performed hereunder during such period, the same to be due and payable by OWNER to the ENGINEER on or before the 10th day of the following period.

SECTION E - INTEREST ON UNPAID SUMS

If OWNER fails to make any payment due ENGINEER within 60 days for services and expenses and funds are available for the project then the ENGINEER shall be entitled to interest at the rate of 12 percent per annum from said 60th day, not to exceed an annual rate of 12 percent.

SECTION F - SPECIAL PROVISIONS

SECTION D – ADDITIONAL ENGINEERING SERVICES

- Environmental Assessment for R.O. Concentrate Discharge \$45,000
- Reverse Osmosis Technical Consultant (See Attached) \$30,000
- Plant Site Wetlands Delineation \$ 7,500
\$82,500

COPY

AEPI/ROSTEK, INC.

Western Office

3580 Ridgeview Drive
SANTA ROSA
California, 95404

February 4, 1998

PRIAFE

Robert W. Oreskovich
Director, Dare Regional Water System
600 Mustian Street
Kill Devil Hills, NC, 27948

Subject: Proposal for Technical Consulting services. Stumpy Point Water Treatment Plant

Dear Bob:

Please find attached our proposal to provide Technical Consulting services in connection with the proposed water system and treatment plant at Stumpy Point. Because the scope is largely undefined at this point in time, I am suggesting a reimbursable fee basis at this time.

I have included in the scope a pilot plant task. Given that the water quality for both the upper and lower zone appears to require some extended pretreatment, such as iron removal and/or media filtration in addition to the membrane plant, I think that this may be an important task. This is even more true if you elect to build the system in house.

You will also notice that I have not gone beyond preliminary design. This is because the design phase work scope is entirely dependent on whether or not you do the work in house. So our proposal for this phase is best left till that decision is made.

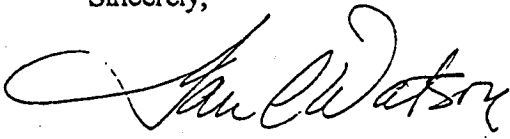
I have received a fax from Eric requesting some assistance, and I am happy to provide that to him. As you know, I have already looked at some options, and have a fair idea of the possible problems. I will keep you posted as to the progress we are making.

As far as contracting for this work is concerned, a PO number would be fine. However, since I do not know how Dave has set up the accounts for this project, I leave that entirely up to you.

02/04/98

Something for you to think about. If additional pretreatment is required, how about micro-filtration? A double membrane system could save some cost in chemicals and waste disposal.

Sincerely,

A handwritten signature in cursive script, appearing to read "Ian C. Watson".

Ian C. Watson, PE
President/COO

cc: O.J. Morin
Eric Weatherly, w/o attach.

File: c:\vwork\dare county\stumpy point\proposal letter.doc

ATTACHMENT "A"

Proposal

Owner: County of Dare

Project: Consulting services for testing, design, construction and startup for a new water treatment plant located at Stumpy Point, North Carolina.

Task 1-Treatability and Feasibility Phase.

Part of the potable water system being tentatively proposed for the Stumpy Point area will in all probability involve the design, construction and startup of a membrane-based groundwater treatment plant. Water samples taken from two different depths have been analysed. Therefore this task will include review of the water quality data, development of appropriate treatment alternatives, and the preparation of conceptual plant arrangements and an opinion of cost. A Technical Memorandum will summarize the findings, and be the output for this task

Task 2 - Short Term Pilot Testing.

A brief review of the water quality data that is currently available indicates a need for pilot testing to evaluate the fouling and /or plugging tendencies of the two possible raw water sources. In addition, the effect of such constituents as iron, silica, and bio-activity must be evaluated under operational conditions with feedwater from a properly constructed, pumped well. Such a test could very well demonstrate that pre-treatment steps currently thought to necessary may not be required. This would result in both capital and operating cost savings. On the other hand, pilot test data could show a specific component to be a long term operating headache, and suggest a pretreatment scheme to deal with the problem. Therefore the following scope has been developed (it is suggested that the operational period for the pilot plant be limited to 60 calendar days).

1. Provide overview of pilot plant operation and condition of equipment. *(Consultant will make one three day trip per month during pilot plant operations. Review and advice on operations during the test period and review of data is included in this task.)*
2. Water Quality Data. Owner will provide water quality testing and analytical services as required.
3. Perform Evaluations of Test Results obtained from the pilot plant operation for use in development of process design for a full scale plant. Test results will be used to develop operational parameters for the full-scale facility including:
 - a. The need for pretreatment,
 - b. The type of pretreatment - if any,
 - c. Finished water characteristics,
 - d. Blend water special treatment,
 - e. Brine characteristics and disposal volume.

4. Report. A Technical Memorandum will be prepared, summarising the pilot plant testing program.. The report will summarize the pilot test data, and summarize the evaluations developed in Subtask3.

Task 3 - Preliminary Design Report

The Consultant will prepare a Preliminary Design Report. The report will include an opinion on the anticipated project cost for the work. The cost estimate will be based on a traditional equipment specification and purchase, and on a non-traditional approach in which Dare County staff will procure components and build the treatment plant.

The Preliminary Design Report will contain the following information:

1. Basic design assumptions, process calculations, equipment capacities and sizes, and overall equipment layouts.
2. Preliminary process flow diagram (PFD), and piping and instrumentation diagrams (P&IDs).
3. Building floor plan arrangements for the process and related area(s).
4. Opinion on treatment plant cost.
5. The project schedule including schedules for procurement and construction of the RO system.

Task 4 - Technical Support to Hobbs, Upchurch and Associates

This phase covers advisory and technical input to HUA during their preliminary design development for the balance of plant, including process building; site development; raw water collection and transmission piping system; wells and well appurtenances; and integration of the membrane treatment system package into the overall project.

Dare County, North Carolina
Stumpy Point Water Treatment Plant

Attachment "B"
Fee Proposal Summary

<u>Task #</u>	<u>Description</u>	<u>Fee Basis</u>	<u>Fee Amount</u>
1	Treatability and Feasibility	Time & Expense	\$ 5,000
2	Short Term Pilot Testing	T & E	\$10,000
3	Preliminary Design Report	T & E	\$10,000
4	Technical Support to HUA	T & E	<u>\$ 5,000</u>
<u>Total Estimated Fee</u>			<u>\$30,000</u>

Dare County, North Carolina
Stumpy Point Water Treatment Plant

Attachment "C"
AEPI/RosTek, Inc.
TIME AND EXPENSE RATE SCHEDULE

Principal Consultant	\$125.00/hr
Associate	\$100.00/hr
Drafting	\$ 65.00/hr
Clerical/Word Processing	\$ 45.00/hr

Travel and accommodation	cost + 0%
Automobile Travel	\$0.30/mile
Xeroxing, Printing and Blueprinting	cost + 5%
Postage and Overnight	cost + 0%
Telephone/Fax/Cellular	cost + 5%
Lab. Work, Testing, Special Services	cost + 10%
Subcontracted Work	cost + 10%

Note 1. Unless otherwise negotiated, hourly rates are charged portal to portal
Note 2. For well defined scope of work, lump sum task fees may be negotiated.

SECTION G - APPROVAL BY RURAL DEVELOPMENT

This Agreement shall not become effective until approved by Rural Development. Such approval shall be evidenced by the signature of a duly authorized representative of Rural Development in the space provided at the end of this Agreement. The approval so evidenced by Rural Development shall in no way commit Rural Development to render financial assistance to the OWNER and is without liability for any payment hereunder, but in the event such assistance is provided, approval shall signify that the provisions of this Agreement are consistent with the requirements of Rural Development.

IN WITNESS WHEREOF, the parties hereto have executed, or caused to be executed by their duly authorized officials, this Agreement in duplicate on the respective dates indicated below.

(SEAL)

ATTEST _____

Type Name _____

Title _____

(SEAL)

ATTEST _____

Type Name _____

Title _____

OWNER:

By _____

Type Name _____

Title _____

Date _____

ENGINEER:

By _____

Type Name _____

Title _____

Date _____

APPROVED:

RURAL DEVELOPMENT

By _____

Type Name _____

Title _____

Date _____

INTERIM AGREEMENT

(For use only when OWNER is not legally organized on the date the Agreement for Engineering Services is executed.)

In lieu of the execution of the foregoing Agreement for Engineering Services dated the _____ day of

_____, 19 __, by the party designated as OWNER therein, the undersigned, hereinafter referred to as INTERIM PARTIES, have executed this Interim Agreement in consideration of the services described in Section A-1 through A-3, inclusive, of said Agreement for Engineering Services to be performed by the ENGINEER, and the ENGINEER agrees to accept this Interim Agreement as evidenced by ENGINEER'S execution hereof contemporaneously with the execution of the Agreement for Engineering Services. The ENGINEER also agrees to perform the services set forth in Section A-1 through A-3, inclusive, of said Agreement in consideration of the sum stated in Section B-1 of said Agreement be paid in the manner set forth therein.

It is anticipated that the OWNER shall promptly become a legal entity with full authority to accept and execute said Agreement for Engineering Services and that the OWNER, after becoming so qualified, shall promptly take such action necessary to adopt, ratify, execute, and become bound by the Agreement for Engineering Services. The ENGINEER agrees that upon such due execution of the Agreement for Engineering Services by the OWNER, the INTERIM PARTIES automatically will be relieved of any responsibility or of liability assumed by their execution of this Interim Agreement, and that the ENGINEER will hold the OWNER solely responsible for performance of the terms and conditions imposed upon the OWNER by the Agreement for Engineering Services, including the payment of all sums specified in Section B-1 of said Agreement.

If the OWNER is not legally organized, or if after being duly organized it fails or refuses to adopt, ratify, and execute the Agreement for Engineering Services within 30 days from the date it becomes legally organized and qualified to do so, or if for any other reason the project fails to proceed beyond the preliminary stage described in Section A-1 through A-3 inclusive, of said Agreement, the INTERIM PARTIES agree to pay ENGINEER for such preliminary engineering services, an amount not to exceed the sum specified therefor in Section B-1 of said Agreement.

IN WITNESS WHEREOF, the parties hereto have executed, or caused to be executed by their duly authorized officials, this Agreement in duplicate this _____ day of _____, 19 __.

OWNER

ENGINEER

**ATTACHMENT I - FORM 1942-19 (AGREEMENT FOR ENGINEERING SERVICES)
(as revised May 24, 1995)
UNITED STATES DEPARTMENT OF AGRICULTURE
RURAL ECONOMIC AND COMMUNITY DEVELOPMENT SERVICE**

**NORTH CAROLINA FEE SCHEDULE FOR BASIC ENGINEERING SERVICES
AS A PERCENTAGE OF TOTAL CONSTRUCTION COST**

Unless otherwise agreed by all parties the applicable fees for basic engineering services on projects financed wholly or in part by RECD or on projects where funds are administered by RECD will be calculated as a percentage of construction costs in accordance with the guidelines below:

1. Table I fee schedule may be used for that portion of a construction project which is typically of a complex nature such as water plants (excluding chlorination and simple chemical feed systems), wastewater plants, wastewater collection and interceptor lines, water or wastewater pump stations (except for pre-fabricated or package units), design of constructed-in-place clear wells and intake structures, rehabilitation of existing water or sewer facilities, and appurtenant work to above (electrical, plumbing, HVAC, etc.)

2. Table II fee schedule will apply to basic services for all other project elements such as water lines, wells, minor water treatment facilities (chlorination and simple chemical feed systems), elevated tanks and foundations, and manufacturer designed clearwells and storage tanks, "package pump stations", and appurtenances to these elements.

3. For projects which involve improvements falling under both Table I and Table II the following procedure will apply for calculating the percentage of construction cost to be used:

A. The specific project elements under each table will be added.

B. The applicable percentage of construction cost will be calculated using a weighted average procedure as illustrated reverse.

The weighted average percentage will then be applied to the total construction cost to arrive at the amount of fees for basic engineering services.

4. The construction cost used in the calculation shall exclude contracts which involve only supply of materials/services.

TOTAL CONSTRUCTION COST	TABLE I - PERCENTAGE	TABLE II - PERCENTAGE
\$		
< 100,000	NEGOTIATED	NEGOTIATED
100,000	10.3	8.6
200,000	9.3	7.9
300,000	8.7	7.5
400,000	8.4	7.2
500,000	8.0	6.9
600,000	7.8	6.7
700,000	7.6	6.5
800,000	7.4	6.4
900,000	7.3	6.3
1,000,000	7.2	6.2
2,000,000	6.7	5.8
3,000,000	6.4	5.5
4,000,000	6.2	5.2
5,000,000	5.9	5.0
10,000,000	5.7	4.8
15,000,000	5.6	4.7
20,000,000	5.5	4.6

(over)

For project costs falling between the figures shown in the above table shall be interpolated on a straight line basis to nearest one-hundredth of one percent.

For planning purposes engineering fees for basic services may be estimated based on the above table and the estimated construction cost. The final amount due for basic services shall be calculated based on the final construction cost of the project, exclusive of project elements for which engineering fees have been paid for under separate agreement.

Compensation for resident inspection shall be in accordance with a project inspection plan (see Attachment II) which is to be finalized after the award of contracts. For planning purposes the cost of resident inspection may be estimated based on the anticipated cost of those services as calculated under Attachment II.

EXAMPLE: CALCULATION OF BASIC FEE USING WEIGHTED AVERAGE PROCESS

PROJECT ELEMENTS - WATER TREATMENT PLANT AT A COST OF - \$2,000,000

ELEVATED WATER TANK AT A COST OF - \$500,000

WATER LINES AT A COST OF - \$1,000,000

CONSTRUCTED IN PLACE PUMP STATION AT A COST OF \$100,000

TOTAL PROJECT COST - \$3,600,000

PROJECT ELEMENTS - WATER PLANT (\$2,000,000) + PUMP STATION (\$100,000) = \$2,100,000

PROJECT ELEMENTS - WATER LINES (\$1,000,000) + ELEVATED TANK (\$500,000) = \$1,500,000

PROJECT ELEMENT I % for \$3,600,000 = 6.28 (interpolated between \$3,000,000 and \$4,000,000 percentages)

PROJECT ELEMENT II % for \$3,600,000 = 5.32 (interpolated between \$3,000,000 and \$4,000,000 percentages)

WEIGHTED AVERAGE = $\$2,100,000/\$3,600,000 \times 6.28\% + \$1,500,000/\$3,600,000 \times 5.32\% = 5.88\%$

MULTIPLY 5.88% X \$3,600,000 = \$211,680 (BASIC ENGINEERING SERVICES FEE)

Calculation of Basic Fee Using Weighted Average Process

Without Fire Protection

Table I	Elements: Treatment	\$200,000
	Discharge	\$100,000
		\$300,000

Table II	Elements: Wells & Raw Water Main	\$134,375
	Storage	\$70,000
	Distribution	\$182,125
		\$386,500

Table I % for \$300,000 = 8.70%

Table II % for \$386,500 = 7.25%

$$\begin{aligned} \text{Weighted Average} &= (\$300,000/\$686,500 \times 8.70\%) + (\$386,500/\$686,500 \times 7.25\%) \\ &= 7.89\% \end{aligned}$$

$$\begin{aligned} \text{Basic Engineering Fee} \\ 7.89\% \times \$686,500 &= \$54,165 \end{aligned}$$

With Fire Protection

Table I	Elements: Treatment	\$200,000
	Discharge	\$100,000
		\$300,000

Table II	Elements: Wells & Raw Water Main	\$134,375
	Storage	\$255,000
	Distribution	\$310,625
		\$700,000

Table I % for \$300,000 = 8.70%

Table II % for \$700,000 = 6.50%

$$\begin{aligned} \text{Weighted Average} &= (\$300,000/\$1,000,000 \times 8.70\%) + (\$700,000/\$1,000,000 \times 6.50\%) \\ &= 7.16\% \end{aligned}$$

$$\begin{aligned} \text{Basic Engineering Fee} \\ 7.16\% \times \$1,000,000 &= \$71,600 \end{aligned}$$

RECD ASSISTED WATER AND/OR WASTEWATER SYSTEM PROJECT -
CONSTRUCTION INSPECTION PLAN (see General Conditions and Approvals on reverse)
(to be finalized after the award of contracts but prior to the start of construction)

APPLICANT/BORROWER Dare County, North Carolina
BRIEF DESCRIPTION OF PROJECT (describe elements/components and quantities)
Stumpy Point Community Water System

CONSULTING FIRM: _____

CONTRACTORS:

<u>CONTRACT #</u>	<u>CONTRACTOR</u>	<u>CONTRACT AMOUNT</u>	<u>NOTICE TO PROCEED DATE</u>
I	<u>Water Distribution</u>	<u>\$325,000</u>	_____
II	<u>Wells</u>	<u>\$120,000</u>	_____
III	<u>Treatment</u>	<u>\$200,000</u>	_____
IV	<u>Storage</u>	<u>\$255,000</u>	_____
V	<u>Discharge</u>	<u>\$100,000</u>	_____

The Consulting Engineer, _____, hereby proposes to provide resident construction inspection services on the above project in accordance with the following schedule of personnel to be assigned to this project and in general accordance with the following projected time requirements and costs. Only inspectors who are likely to be used on this project should be listed. If necessary other inspectors may be added later through amendment to this schedule.

SECTION I - PERSONNEL COSTS

<u>INSPECTOR'S NAME</u>	<u>CLASSIFICATION *</u>	<u>CONTRACT (S) ASSIGNED</u>	<u>ESTIMATED** HRS. REQUIRED</u>	<u>HOURLY *** RATE \$/HR.</u>	<u>EST. COST col. 4 x col. 5</u>
_____	<u>Advanced</u>	<u>II</u>	<u>160</u>	<u>\$40.00</u>	<u>\$ 6,400</u>
_____		<u>III</u>	<u>694</u>	<u>\$45.00</u>	<u>\$31,230</u>
_____		<u>IV</u>	<u>160</u>	<u>\$40.00</u>	<u>\$ 6,400</u>
_____	<u>Intermediate</u>	<u>I</u>	<u>694</u>	<u>\$40.00</u>	<u>\$27,760</u>
_____		<u>V</u>	<u>80</u>	<u>\$40.00</u>	<u>\$ 3,200</u>

TOTAL INSPECTION COST ESTIMATE (PERSONNEL) \$75,000

Advanced - At least five years on-the-job inspection experience with similar projects and capable of functioning independently with minimum supervision from engineer.
Intermediate - 1-5 years on-the-job inspection experience with similar projects - works under general supervision of advanced inspector.
Junior - Less than one year experience with similar projects - works under close supervision of advanced inspector or engineer.

** Attach separate sheet with documentation for estimated hours for each inspector. (OVER)
*** Proposed billing rate inclusive of salary, overhead, and profit.

SECTION II - PER DIEM, MILEAGE, AND MISCELLANEOUS COSTS

Total Estimated Mileage (all inspectors) _____ x _____ (reimbursement rates) \$ _____

Per diem-if applicable (total days -all inspectors) _____ x _____ (daily rate)..... \$ _____

Miscellaneous Expenses \$ _____

TOTAL SECTION II EXPENSES: \$ N/A

Attach separate sheet with documentation of all per diem, mileage, and itemized misc. expenses.

RESIDENT INSPECTION CEILING COST (SECTION I + SECTION II) \$ 75,000

Construction Inspection Plan - General Conditions

The Consulting Engineer hereby agrees to prepare the construction inspection plan and perform construction inspection services in accordance with the following conditions:

1. The experience level of the inspector(s) assigned will be commensurate with the nature and difficulty of the work to be performed, inasmuch as scheduling and overall efficiency of the inspection effort will allow. The hourly rates indicated in the inspection plan shall reflect the level of experience of the inspector assigned.
2. The Engineer will use his best judgment when allocating time of an inspector to each job. The inspector will not be assigned responsibilities on the job site when the nature of the work does not require his presence.
3. The Engineer will take into account the work location(s), construction time period, number of construction crews, expected level of effort required, etc., when developing the construction inspection plan and assigning inspectors.
4. The Engineer will manage the inspection effort in accordance with the approved plan and will notify the Owner and RECD of any anticipated change or modification in the plan. Any changes in inspectors, proposed ceiling increases, or major changes in inspector assignments will not be made or effective until an amendment to the plan has been prepared and approved by all parties.
5. The Engineer agrees not to bill for inspection services, in excess of the ceiling amount established above, without first obtaining approval of all parties through an amendment to the plan. Detailed justification for additional time, number of inspectors, etc., will be required from the Engineer in support of any changes to the original plan.
6. Invoices for inspection services will be based on actual hours of inspection service required and actual expenses incurred subject to the ceiling amount established above.
7. The Engineer will include, as an attachment to the construction inspection plan, a resume and list of anticipated duties and responsibilities for each inspector.
8. No RECD funds or RECD administered funds will be expended for resident inspection services prior to review and approval of the construction inspection plan by all parties.

APPROVAL OF PROPOSED INSPECTION PLAN:

OWNER/APPLICANT:

CONSULTING ENGINEER:

Terry L. Wheeler _____ (DATE)
 Terry L. Wheeler print name

_____ (DATE)
 _____ print name

_____ (DATE)
 _____ print name

Attachment Q
Miscellaneous County Financial Information

LGC-109

**STATE OF NORTH CAROLINA
DEPARTMENT OF STATE TREASURER**

*State and Local Government Finance Division
and the Local Government Commission
325 North Salisbury Street, Raleigh, North Carolina 27603-1385*

STATEMENT OF DEBT

For County of Dare North Carolina

To be filed with the application. The debt described below should not include debt incurred or to be incurred in anticipation of the collection of taxes or other revenues or in anticipation of the sale of bonds other than funding or refunding bonds. The debt described below should not include revenue bonds or special obligation bonds.

A. Gross Debt

1. Outstanding debt evidenced by bonds:

<u>Purpose</u>	<u>Amount</u>	
Refunding G.O. bonds, S1993	\$16,335,000	
Water		
Sanitary Sewer		
Electric		
Gas		
Other - School G.O. bonds, S1990	1,600,000	<u>\$ 18,775,000</u>
- School G.O. bonds, S1995	840,000	

2. The proposed financing, and bonds authorized by orders introduced but not yet adopted:

<u>Date Introduced</u>	<u>Purpose</u>	<u>Amount</u>
3/16/98	Series 1998 COPS	\$12,190,000
	- Refunding	
	- Health/Social Services	
	- Construction & Demolition Facility	<u>\$ 12,190,000</u>

3. Unissued bonds authorized by adopted orders:

<u>Date Introduced</u>	<u>Purpose</u>	<u>Amount</u>
		\$ _____

4. Outstanding debt not evidenced by bonds (lease-purchase agreements):

<u>Date Incurred</u>	<u>Purpose</u>	<u>Amount</u>
		\$ 12,823,147

See attached

Total Gross Debt (Sum of 1. 2. 3 and 4) \$ 43,788,147

Deductions

1. Funding and refunding bonds authorized by orders introduced but not yet adopted..... 3/16/98	\$ <u>5,710,000</u>
2. Funding and refunding bonds authorized but not issued.....	\$ <u>-0-</u>
3. Amount held in sinking funds or otherwise for the payment of gross debt other than debt incurred for water, gas, electric light or power purposes or sanitary sewer purposes (to the extent deductible under Section 159-55[b] of The Local Government Bond Act), or two or more of these purposes.	\$ <u>-0-</u>
4. Bonded debt included in gross debt and incurred or to be incurred for water, gas or electric light or power purposes, or any two or more of these purposes.	\$ <u>-0-</u>
5. Bonded debt included in gross debt and incurred or to be incurred for sanitary sewer system purposes (to the extent deductible under Section 159-55[b] of The Local Government Bond Act).	\$ <u>-0-</u>
6. Uncollected special assessments levied for local improvements for which gross debt (that is not otherwise deducted) was or is to be incurred, to the extent it will be applied, when collected, to the payment of such gross debt.	\$ <u>-0-</u>
7. Estimate of special assessments to be levied for local improvements for which any part of gross debt (that is not otherwise deducted) was or is to be incurred, to the extent that the special assessments when collected, will be applied to the payment of any part of gross debt.	\$ <u>-0-</u>
Total Deductions (Sum of 1 through 7)	\$ <u>5,710,000</u>
C. Net Debt being the difference between Total Gross Debt (A) and Total Deductions (B).....	\$ <u>38,078,147</u>
D. Assessed Value of property subject to taxation being the value from which the assessed value was last fixed for taxation as revealed by the County tax records and certified by the County Tax Supervisor.....	\$ <u>4,530,917,000</u>
E. Percentage that Net Debt bears to the assessed value of property subject to taxation (C ÷ D).....	<u>0.84</u> ,

I certify the above is correct to the best of my knowledge	Finance Officer's Signature <i>D. Daniel Clawing</i>	Date 3/16/98
------------------------------------------------------------	---------------------------------------------------------	-----------------

County of Dare, North Carolina
 Statement of Debt
 As of 3/16/98

Item 4 - Outstanding debt not evidenced by bonds

Date Incurred	Description	Purpose	Amount	Type
6/5/91	Series 1991 COPS	Jail & Emergency Operations Center	\$8,465,000	Installment financing contract
3/31/95	EC Bank 1995	Fessenden Center - Recreation & Older Adults	853,575	Installment financing contract
5/9/95	Wachovia 1995	Mental Health Center	204,244	Installment financing contract
11/6/95	BB&T G5	Power PC (mainframe)	74,665	Lease purchase
9/20/95	BB&T G4	Ambulances	39,097	Lease purchase
12/21/95	FUNB SS#2	Vehicles & aerial photography	249,210	Lease purchase
11/17/95	FUNB SS#1	Teacher laptops	364,984	Lease purchase
12/21/95	FUNB SS#3	School technology equipment & project	860,843	Lease purchase
7/18/96	FUNB SS#4	Vehicles - Sheriff	57,909	Lease purchase
11/18/96	FUNB SS#5	Vehicles - various	255,549	Lease purchase
7/5/97	Wachovia LCorp G97-2	Vehicles - various	533,508	Lease purchase
10/8/97	BB&T G97-3	Software & hardware - finance & tax	364,510	Lease purchase
2/18/97	BB&T G97-1	EMS helicopter engines	467,601	Lease purchase
12/9/86	HR Gray	Buxton offices	<u>32,452</u>	Real estate mortgage

\$12,823,147

STATE OF NORTH CAROLINA)
) ss.:
COUNTY OF Dare)

J. David Clawson, Jr., being duly sworn, says that he is
the Finance Officer of the _____ County of Dare
in the State of North Carolina; and that the foregoing statement is true and was made and subscribed by
him.

J. David Clawson, Jr.
Finance Officer 3/16/98

Sworn to and subscribed before me on
the day of the date of said statement

Shawn Kay Lewis
(Notary Public)

My commission expires the 24 day of July, 192000

STATE OF NORTH CAROLINA)
) ss.:
COUNTY OF Dare)

I, the undersigned Clerk to the Board of the County
of Dare in the State of North Carolina. DO HEREBY CERTIFY that the
foregoing statement and accompanying affidavit were filed in my office on the 16th day of
March, 1998.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the seal of said County, this
16th day of March, 1998.

Frances W. Harris
Clerk

DARE COUNTY, NORTH CAROLINA
 COMPUTATION OF LEGAL DEBT MARGIN
 June 30, 1997

Table 3

Assessed property value		<u>\$4,409,067,936</u>
Gross limitation - 8 percent of assessed of property value		\$352,725,435
Total outstanding general obligation bonded debt	\$19,575,000	
Outstanding revenue bonds	9,030,000	
Amount due under lease purchase and other financing arrangements, primarily for land, capital improvements and equipment	12,740,468	
Bonds authorized but unissued	0	
	<u>41,345,468</u>	
Less - water revenue bonds	<u>(9,030,000)</u>	
Outstanding debt, net		<u>32,315,468</u>
Net legal debt margin		<u>\$320,409,967</u>

NORTH CAROLINA MUNICIPAL COUNCIL, INC.

Incorporated Not For Profit

5 WEST HARGETT ST. - SUITE 204 - P.O. BOX 1391
RALEIGH, NORTH CAROLINA 27602 - 1391

April 8, 1998

Report No. 268-DD

DARE COUNTY NORTH CAROLINA

(Council Rating - 81)

County seat	Population - 1970	6,995
Manteo	1980	13,377
Land area 351 sq. mi.	1990	22,746
	(est.) 1996	26,542

Assessed Valuation for 1994-95		\$ 4,209,675,163
1995-96		4,312,583,929
1996-97		4,409,067,936
1997-98	Real Property	\$ 4,187,792,501
	Personal Property	219,956,201
	Public Service Cos.	<u>79,859,501</u>
		\$ 4,487,608,203

Real property was last reappraised for 1990 taxation and is listed at 100% of the 1990 appraised value.

Indebtedness (2-2-1998)

Bonds - General	\$ -	
School	19,425,000	
Installment Obligations (est.)	<u>12,628,261</u>	
	\$ 32,053,261*	
Utility Obligations	<u>-</u>	
	Net Debt (0.71%)	\$ 32,053,261
Per capita gross debt (County-wide only)		\$ 1,208

* The debt excludes \$9,030,000 Utility System Revenue Bonds, Series 1994, which are payable solely from net revenues of the County's utilities system (presently consisting of only a water system) and certain investment earnings.

Underlying Tax Supported Indebtedness (Gross Figures)

Obligations on which Debt Service is Handled by the County:		\$ -
None		
Obligations on which Debt Service is Handled by Debtor Unit:		
Manteo - Town (county seat)	\$ 806,618*	
Kill Devil Hills -Town	624,651	
Nags Head - Town	<u>3,832,024</u>	5,263,293
Total gross underlying debt		\$ 5,263,293
Total gross debt (County-wide and underlying)		\$ 37,316,554
Per capita gross debt (County-wide and underlying)		\$ 1,406

* Excludes a \$2,360,195 State Revolving Loan

"THIS REPORT CONSISTS OF A SUMMARY OF THE AVAILABLE INFORMATION ON THE FINANCIAL STATUS OF THE SUBJECT LOCAL GOVERNMENT UNIT. IT IS NOT PREPARED OR PRESENTED IN CONNECTION WITH THE OFFER, SALE OR PURCHASE OF ANY BOND OR SECURITY. IT IS NOT AN OPINION ON THE ADVISABILITY OF INVESTMENT IN ANY BOND OR SECURITY. THE REPORT IS OFFERED ONLY AS A SERVICE TO SUBSCRIBING MEMBERS TO PROVIDE THEM WITH ADDITIONAL INFORMATION UPON WHICH, TO MAKE THEIR OWN JUDGMENTS."

RELATIVE DEBT BURDEN

Gross County-wide Debt		\$ 32,053,261
Utility Earnings Capitalized (3 yr. avg.)	\$ 7,035,893	
Liquor Revenue Capitalized (3 yr. avg.)	1,728,583	
Special Federal Revenues Capitalized (3 yr. avg.)	<u>2,960,243</u>	<u>11,724,719</u>
		\$ 20,328,542
Hypothetical debt based on relative ability to pay (318%)		\$ 6,392,623
Hypothetical per capita debt burden		\$ 241

NOTE - This section is inserted primarily for rating purposes. Outstanding debt is adjusted by deducting capitalized special revenues and adding proportionate overlapping obligations. The debt is further adjusted in accordance with certain resources of the unit so as to better reflect the burden it represents in relation to the normal North Carolina county.

COUNTY ENTERPRISE SYSTEMS

County Water System

The County system obtains its water from two separate sources. On Roanoke Island, fresh water is pumped from ten deep wells. On the Outer Banks (Bodie Island), the County has a desalination plant which is supplied water from eight deep wells. In June 1994, the County issued \$9,690,000 Revenue Bonds to upgrade the reverse osmosis desalination plant, drill new wells, purchase a water system (two wells) from Kill Devil Hills (1,270 customers), and to construct a water distribution system and a reverse osmosis plant on Hatteras Island to serve the Waves, Rodanthe and Salvo communities (754 total customers). Additionally, the County replaced water mains in the Duck area that were funded from bond proceeds (1994) and interest earnings. The bond sale proceeds were supplemented by interest earnings and capital charges to Nags Head and Kill Devil Hills. On July 7, 1997, Dare County acquired ownership of the Cape Hatteras Water Association system which has approximately 3,000 customers. The private water system served the communities of Hatteras Village, Avon, Buxton and Frisco. The County plans to issue between \$10 and \$12 million water revenue bonds in 1998, to be used to make extensive improvements to the existing water system and to construct new facilities, including a new reverse osmosis plant. The County will likely continue to extend lines and make system improvements from budgeted revenues. The County system is interconnected with the municipal systems of Manteo, Nags Head and Kill Devil Hills. Dare County services approximately 7,942 customers in the Towns of Kitty Hawk, Southern Shores and in the unincorporated areas of the County. The minimum residential water charge is \$51.00 per quarter for 9,000 gallons. Additional usage is \$4.50 per thousand gallons. The bulk rate for water sold to the municipalities is \$1.35 per thousand gallons. Usage of 6,000 gallons per month (prorated) by residential customers is \$30.50. Rates were last increased on July 1, 1995 and will likely be increased again on July 1, 1998.

-continued-

County Water System - continued

Operation of the County water system was as follows:

	1994-95	1995-96	1996-97
Operating Revenue	\$ 3,858,977	\$ 5,188,982	\$ 5,717,813
Operating Expense*	<u>2,430,171</u>	<u>3,704,944</u>	<u>4,366,653</u>
Operating Profit	\$ 1,428,806	\$ 1,484,038	\$ 1,351,160
Improvements (from oper. revenue)	<u>-</u>	<u>-</u>	<u>-</u>
Profit	\$ 1,428,806	\$ 1,484,038	\$ 1,351,160
Debt Service on Revenue Bonds	<u>488,785</u>	<u>833,563</u>	<u>830,888</u>
Net Profit	\$ 940,021	\$ 650,475	\$ 520,272

* Depreciation excluded

NOTE - Cash and investments in Water System accounts at June 30, 1997 amounted to \$1,918,366 in operating accounts, \$2,332,536 in extension and replacement accounts, \$107,244 in construction accounts, \$2,784,627 in revenue bond accounts and \$37,563 in debt service accounts.

Revenue Bonds (2-2-1998) \$9,030,000

Dare County issued \$9,690,000 Utilities System Revenue Bonds, Series 1994 (MBIA Insured), to construct a water system to serve the communities of Rodanthe, Waves and Salvo, to make improvements to the revenue osmosis water treatment plant, and to purchase a private water system from Kill Devil Hills. The revenue bonds are payable from and secured solely by a pledge of Net Receipts of the utilities (water) system. The bonds are described as follows:

\$ 4,465,000 Util. Syst., 1994 3.9% to 5.1% Dated June 15, 1994 Due June 1, 1996/2006
5,225,000 Util. Syst., 1994 5.75% " June 15, 1994 " June 1, 2014

Redemption Provisions, Trustee, Securities Depository and Bond Counsel

Redeemable on June 1, 2004, either in whole on any subsequent date or in part on any subsequent interest payment date(s) at a premium of 2% from 6-1-2004/5-31-2005; 1% from 6-1-2005/5-31-2006; thereafter at par. NationsBank of North Carolina, NA, serves as Trustee; The Depository Trust Company, New York, NY, serves as Securities Depository; and Parker, Poe, Adams & Bernstein (Charlotte) served as Bond Counsel.

Revenue Bond Requirements (Fiscal year July 1st to June 30th)

	<u>Principal</u>	<u>Prin. & Int.</u>		<u>Principal</u>	<u>Prin. & Int.</u>
1997-98	\$ 350,000	\$ 832,152	2006-07	\$ 530,000	\$ 830,438
1998-99	365,000	832,103	2007-08	565,000	834,962
1999-00	380,000	831,042	2008-09	595,000	832,474
2000-01	400,000	833,563	2009-10	630,000	833,263
2001-02	420,000	835,162	2010-11	665,000	832,037
2002-03	440,000	835,003	2011-12	705,000	833,800
2003-04	460,000	833,442	2012-13	745,000	833,263
2004-05	485,000	835,443	2013-14	<u>790,000</u>	<u>835,425</u>
2005-06	505,000	831,192	Total	\$9,030,000	\$14,164,765

ADMINISTRATION AND FINANCIAL RECORD

Tax Rate (Based on \$100.00 assessed valuation)

1994-95	\$.37
1995-96	.40
1996-97	.40
1997-98	.47

Special rates ranging from 4¢ to 12¢ are levied in fifteen fire districts; special rates of 9¢ are levied in each of seventeen sanitary districts; special rates of 2¢ to 12¢ are levied in six community center districts; special rates of 1.25¢ are levied in four rescue squad service districts; and a special rate of 1¢ in a sidewalk district.

Tax Collection Record (Fiscal year July 1st to June 30th)

	1994-95	1995-96	1996-97
Levy (includes district taxes)	\$ 18,671,483	\$ 20,766,517	\$ 21,263,829
Collected to 7-1-1997	<u>18,528,011</u>	<u>20,441,287</u>	<u>20,584,175</u>
Uncollected	\$ 143,472	\$ 325,230	\$ 679,654
Percent delinquent	.77%	1.57%	3.20%
Collected in year levied	\$ 17,942,245	\$ 20,045,438	\$ 20,584,175
Percent collected in year levied	96.09%	96.53%	96.80%
Uncollected 1993-94 and prior years	\$357,794		

Liquor Revenue

Net profits from the operation of liquor stores by the County ABC Board are distributed as follows: 15% to the municipalities; 5% for alcoholic rehabilitation and the remainder is divided equally between the County and the Dare County Tourist Bureau. County revenue from these sources amounted to \$179,913 in 1994-95; \$165,221 in 1995-96 and \$173,441 in 1996-97.

Federal Natural Resource Lands

The Federal Government owns land in the County for a wildlife refuge. The property is not subject to ad valorem taxes, but a payment in-lieu of taxes is made to the County. These payments amounted to \$318,093 in 1994-95; \$271,075 in 1995-96 and \$298,905 in 1996-97.

Revenue and Expense (Fiscal year ended June 30, 1997)

Revenue:

Ad Valorem Taxes	\$ 19,825,727	
Other Taxes - local option sales	7,289,309	
intangibles	274,898	
real estate transfers	2,445,708	
occupancy	1,398,834	
Unrestricted Intergovernmental	860,505	
Restricted Intergovernmental	2,608,298	
Licenses, Permits and Fees	1,258,455	
Sales & Services	2,785,706	
Investment Earnings	1,429,849	
Water System - Operations	5,717,813	
Impact Fees	1,119,500	
Sanitation User Fees	692,409	
Installment Purchase Proceeds	1,149,325	
Transfer to Capital Projects Funds	69,019	
Miscellaneous	<u>205,870</u>	\$ 49,131,225

-continued-

Installment Obligations \$12,628,261

Dare County has lease and installment purchase agreements for equipment, vehicles and land with minimum requirements annually as described below.

The County is obligated under an installment purchase contract in connection with \$11,000,000 Certificates of Participation (\$8,465,000 principal balance) issued in 1991 for construction of a new jail and detention center. The annual requirements on this contract are described below:

	<u>Lease & Installment Purchases</u>		<u>C.O.P's of 1991</u>	
	<u>Principal</u>	<u>Prin. & Int.</u>	<u>Principal</u>	<u>Prin. & Int.</u>
1997-98	\$ 1,280,097	\$ 1,454,695	\$ 730,000	\$ 1,274,570
1998-99	1,140,437	1,260,817	770,000	1,270,770
1999-00	830,316	904,941	820,000	1,273,800
2000-01	450,835	493,422	870,000	1,272,960
2001-02	166,639	194,519	925,000	1,273,150
Thereafter	<u>406,944</u>	<u>443,145</u>	<u>4,350,000</u>	<u>5,090,850</u>
Total	\$ 4,275,268	\$ 4,751,539	\$ 8,465,000	\$ 11,456,100

Comparative Debt Statement * (County-wide only)

	June 2, 1979	Dec. 2, 1988	Feb. 15, 1995	Feb. 2, 1998
Bonds	\$ 6,344,000	\$ 275,000	\$ 23,180,000	\$ 19,425,000
Installment Obligations	-	<u>4,019,630</u>	<u>11,355,940</u>	<u>12,628,261</u>
Total Gross Debt	\$ 6,344,000	\$ 4,294,630	\$ 34,535,940	\$ 32,053,261
Net Debt	844,000	3,173,630	34,535,940	32,053,261

* Excludes revenue bonds

New Bonds Sold or Contemplated

On December 5, 1995, Dare County sold \$990,000 general obligation bonds (average maturity 3.82 years) to First Union Capital Markets Corp. at par (net interest cost of 4.1603%). The bonds were designated as "Bank Interest Deduction Eligible" and are described as follows:

\$ 600,000 School Bonds	4.10%	Dated	Dec. 1, 1995	Due	Dec. 1996/1999
390,000 School Bonds	4.20%	"	Dec. 1, 1995	"	Dec. 2000/2002

Redemption Provisions, Securities Depository and Bond Counsel

The bonds are not subject to redemption prior to maturity. The Depository Trust Company, New York, NY, serves as Securities Depository and Parker, Poe, Adams & Bernstein serve as Bond Counsel.

Dare County has no new bonds authorized and none are definitely planned at this time. On May 20, 1997, County voters defeated a \$59,500,000 School Bond referendum. The County is considering various options to fund its school needs. The County plans to negotiate approximately \$13,205,000 Certificates of Participation in the very near future, to refund the

-continued-

New Bonds Sold or Contemplated - continued

COP's of 1991 (outstanding principal balance \$8,465,000), to fund construction of a new Health and Social Services Building and to purchase landfill equipment. Dare County plans to issue between \$10 and \$12 million revenue bonds in 1998, for water system improvements.

RESOURCES

Dare County, formed in 1870, is located in the extreme eastern part of North Carolina bordering on the Atlantic Ocean and including much of the area known as the "Outer Banks." The County is divided into three distinct sections by bodies of water as follows: the mainland, lying west of the Croatan Sound, consists almost totally of low lying timberland; Roanoke Island, about ten miles long and five miles wide, is fairly well developed and includes the county seat of Manteo; and the Outer Banks, consisting of two coastal islands, which are sandy strips about two miles wide and about seventy-five miles long. Approximately twenty-five miles of the Outer Banks are well developed with beach homes, hotels, condominiums and commercial establishments. Within the County are approximately 4,000 hotel/motel rooms and approximately 14,000 homes or condominiums that are available for rental. The remaining portion of the Outer Banks, with the exception of the villages of Waves, Rodanthe, Salvo and Buxton, comprises the Cape Hatteras National Seashore Park. Dare County is substantially tourism-oriented, with approximately 150,000 daily residents (up to 250,000 daily in July) during the summer. The primary tourist attractions are the beach communities (Nags Head, Kitty Hawk, Kill Devil Hills, Southern Shores, Duck, Sanderling), the Wright Brothers Memorial commemorating the first powered airplane flight, Fort Raleigh (and the production of "The Lost Colony") commemorating the first permanent English settlement in America in 1587, Jockey's Ridge State Park, the North Carolina Aquarium, and the lighthouses at Bodie Island and Cape Hatteras. Along with the pleasant beach climate, sport fishing attracts a large number of seasonal visitors. Gross retail sales in the County for 1996-97 amounted to \$715,814,512, which was an increase of 5.87% above the previous year. Retail sales have continued to exhibit strong growth annually. Tourism is the primary "industry" in the County as there are no significant manufacturers. Government and utility services provide relatively substantial numbers of jobs in the County. The largest employers in the County (excluding County government) include K-Mart (187 empl.), The Lost Colony (17 empl. seasonally), the U S Coast Guard (140 empl.), The Dunes Restaurant (120 empl.), Food Lion (115 empl.), Wal-Mart (141 empl.), Brithaven Outer Banks, Inc. (nursing home - 127 empl.), Town of Kill Devil Hills (107 empl.), and the Town of Nags Head (100 empl.). Commercial and charter fishing are important segments of the local economy. The unemployment rate in Dare County for January 1998 was 18.1%; Statewide rate was 4.1%; U. S. rate was 5.2%. The County's unemployment rate averaged 5.7% for 1997 and 5.9% in 1996. The County's unemployment rate is usually very low from April through October (averaged 1.96% in this period during 1997), and is much higher during the off-season (averaged 12.0% in the remaining five months of 1997). A large part of the County's land area is owned by the State or Federal government and is not subject to taxation. The Federal Government makes substantial payments to the County annually as compensation for this tax immunity. There are no rail facilities in the County, but it is served by three U. S. highways and three N. C. highways. The Dare County Regional Airport, located near Manteo, provides for general aviation. Permanent population has increased rather rapidly in recent years, increasing by 91.2% from 1970 to 1980, and by 70.0% (9,369 people) from 1980 to 1990. The County's 1996 estimated population of 26,542, reflects an increase of 16.7% (3,796 people) since 1990.

RESOURCES - continued

Largest taxpayers and their 1996 taxes are:

North Carolina Power Co./VEPCO (electric utility)	\$252,981
Barrier Island Station (time share management)	227,760
Roanoke Properties (property development)	146,379
Ship's Watch Limited (property development)	127,568
Sprint/Carolina Telephone (telecommunications)	118,811
Outer Banks Beach Club (time share management)	105,602
Sea Scape Association (time share management)	99,744
Brian K. Newman (real estate)	53,728
Sanderling Inn (resort)	48,595
Penn Mutual (property management)	33,192

CONCLUSIONS**(Total Rating: 81 points out of 100 maximum)****(Previous Rating: 81 points)**

Dare County has a relatively small gross direct debt in proportion to taxable property and the debt is rather high on a per capita basis as the County is a resort area and many of its property owners are non-resident. The County continues to operate with a low ad valorem tax rate. A significant amount of revenue is derived from the occupancy tax and real estate transfer tax which is a direct result of its coastal resort nature. On May 20, 1997, Dare County voters defeated a \$59,500,000 School Bond referendum. The County is evaluating its options as to a method of funding these school needs. The County is presently negotiating the sale of approximately \$13,205,000 Certificates of Participation, to refund the COP's of 1991 (outstanding principal balance \$8,465,000), to fund the construction of a new Health and Social Services Building and to purchase landfill equipment. Additionally, the County has outstanding \$9,030,000 Utility System Revenue Bonds that were issued for the acquisition of a water system, and for water system improvements and extensions. The revenue bonds are payable solely from revenues of the County utilities system, which presently consists of water facilities. On July 7, 1997, Dare County acquired ownership of the Hatteras Water Association system (approx. 3,000 customers). The County plans to issue approximately \$10 to \$12 million revenue bonds in 1998, to upgrade existing facilities and to construct new water facilities associated with this acquisition.

Dare County is a very popular tourist and vacation destination, because of its beaches and historical attractions. The population has grown very rapidly since 1970 and Dare County is a very popular retirement location for people of relative wealth. Real estate sales and development, construction and retail sales are the primary economic activities. Government (local, state & federal) agencies and utilities are the other areas of significant employment.

Government Structure: Board of Commissioners (seven members) and County Manager.
Mr. Terry L. Wheeler is County Manager.
Mr. J. David Clawson, C.P.A., is Finance Director.

NORTH CAROLINA MUNICIPAL COUNCIL, INC.

*Tony L. Blalock*Tony L. Blalock
PresidentSurvey made by
John W. Blackwell, Jr.:eyb

This supplements our Reports Nos. 268 to 268-CC. Report No. 268-CC was released on April 12, 1995 and a new Issue Rating Bulletin was released on November 29, 1995.

NORTH CAROLINA
DARE COUNTY

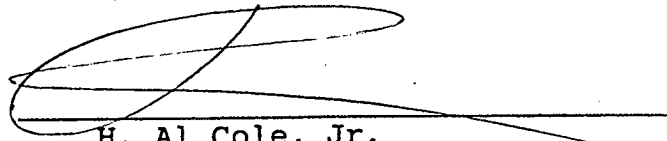
CERTIFICATION

This is to certify that Dare County was legislatively created in 1869 by Public Laws 1869-70, Chapter 36.

I further certify that there are no judgments currently filed or pending against Dare County.

I further certify that the attachment shows Dare County's legal debt margin.


This the 10 day of July, 1998.



H. Al Cole, Jr.
Dare County Attorney

CERTIFICATION

This is to certify that the undersigned organization is unable to obtain adequate credit at reasonable rates and terms from other lenders in the area to finance Stump Point Water System. Attached is documentation of our contacts with other area lenders.



 By: J. David Clawson Name
Finance Director Title
County of Dare, NC

Stumpy Point Community Center

<u>District</u>	<u>Tax Base</u> 7/1	<u>To date</u> Pickups & Releases (estimate)	<u>Prior</u> Year Utilities	<u>Vehicles</u> (estimate)	<u>Total</u>	<u>Latest</u> 6/30 Collection %	<u>Estimate for</u> \$0.01	<u>rate</u>	<u>proceeds</u>
Stumpy Point	6,943,170	3,917	745,293	894,307	8,586,686	91.08	782.08	4	3,128

<u>History:</u>	<u>F/Y</u>	<u>Rate</u>	<u>Coltn %</u>
	1999	0.04	
	1998	0.04	91.08%
	1997	0.04	92.56%
	1996	0.04	90.02%
	1995	0.04	88.82%
	1994	0.04	89.45%
	1993	0.04	
	1992	0.04	
	1991	0.04	Revaluation
	1990	0.04	
	1989	0.04	
	1988	0.04	
	1987	0.04	
	1986	0.04	
	1985	0.04	
	1984	0.04	Revaluation
	1983	0.05	
	1982	0.05	