Dewberry & Davis

CENTRAL ACCOMACK SEWER STUDY

Preliminary Engineering Report
Accomack County, Virginia

A publication of the Virginia Department of Environmental Quality's Coastal Resources Management Program pursuant to National Oceanic and Atmospheric Administration Award No. NA27OZ0312-01

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Preliminary Engineering Report
Accomack County, Virginia

Prepared For:

The Town of Accomac
and
The County of Accomack, Virginia

William J. Weaver, Mayor, Town of Accomac
Arthur K. Fisher, County Administrator, County of Accomack
James M. McGowan, Director of Planning, Accomack - Northampton Planning District Commission

Prepared By:

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April 1993

Report Date 4/15/93

Dewberry & Davis

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May 3, 1993

Mr. Jim McGowan
Director of Planning
Accomack - Northampton Planning District Commission
P.O. Box 417
23372 Front Street
Accomac, Virginia 23301

Re: Central Accomack Sewer Study

Dear Mr. McGowan:

In response to the recommendations of the Central Accomack Sewer Study Committee, Dewberry & Davis has completed the final document for the study, as approved by the Committee.

In accordance with our Agreement for Engineering Services for this project, we are enclosing herewith thirty (30) bound copies and one (1) unbound (in a 3-ring binder) copy of the Final Report. We look forward to working with you and the Towns of Accomac, Melfa, Onancock, Onley and Accomack County as this project moves forward.

Should you have any questions or require additional information please let us know.

Sincerely,

DEWBERRY & DAVIS

O. Lee Maddox, III, P.E.
Director of Engineering

OLM/ljs

accfr.ltr

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CENTRAL ACCOMACK SEWER STUDY
PRELIMINARY ENGINEERING REPORT

EXECUTIVE SUMMARY

The goal of this study is to develop a plan for providing a new central sewage system to the area designated as Central Accomack County which includes the Towns of Accomac, Melfa, Onancock, and Onley and contiguous areas of Accomack County, Virginia.

When this study was initiated, three (3) key issues were set out by the County and Towns. Those key issues appear below:

A. **Cost-Effectiveness** - It is recognized that in order to provide public utility services, the proposed plan and investment must be cost-effective. In other words, the facilities must be able to serve the maximum number of people without excessive project costs (capital and operation and maintenance costs) at levels that cannot be absorbed by the customers it serves. This is especially true in rural areas such as Accomack County where development has or is occurring in remote "pockets" and where average household incomes are low. New service is provided cost effectively when service is provided first to the more densely populated portions of the service areas and to those areas where an investment in service will work best in spurring development. Also a service investment to areas presently served is cost effective when it corrects deficiencies in the current system or enhances the system to preclude future problems. The project must be defined so as to obtain the maximum of grant funds and low-interest loans in order to achieve the lowest possible monthly user cost.

B. **Environmental Soundness** - One of the most important aspects of a public facility improvements project is its environmental soundness. The project must be in the best interest of the area to improve and/or maintain environmental quality.

Within the Central Accomack County area there is one major environmental quality concern that must be considered when evaluating public utility systems. This is ***water quality***.

Ground water is the only source of potable water in Accomack County and for the entire Eastern Shore Area. Ground water is obtained from underground aquifers whose primary recharge source is the "spine area," along U.S. Route 13 which bisects the County and project area. The quantity of ground water is limited and in general terms, the quality is good. The concern is to maintain good quality ground water by good management techniques.

Because of the soil types and the depth to the water table, the areas that are most conducive for development and agricultural purposes are located along the Route 13 corridor. With the majority of development occurring in the ground water recharge area, the potential for degradation of the ground water quality increases. By providing central sewer facilities, one of the prime contributors to the degradation of the ground water quality, individual septic tank-drainfield systems, can be eliminated.

Also, surface water quality is a concern. When water quality falls below acceptable standards, the Virginia Department of Health Division of Shellfish Sanitation must condemn areas that were once suitable for shellfish harvesting. Within Accomack County, there are over 7,000 acres of condemned shellfish areas. This includes parts of Onancock Creek, Chesconessex Creek, Pungoteague Creek, and Folly Creek. Contributors to the degradation of water quality in these shellfish areas include failing or non-existing septic systems, agricultural runoff, runoff from developed areas, and in Onancock Creek the periodic overflows or bypasses from the Onancock Sewage Treatment Plant, due to an infiltration/inflow problem in the collection system.

Again, by providing central sewer facilities one of the contributors, failing or non-existent septic systems, can be eliminated. Also, with improvements to the Town of Onancock sewer collection system and treatment plant, the occurrence of overflows or bypasses can be reduced.

C. **Implementation** - Regardless of how cost-effective and environmentally sound a project may be, it cannot be successful unless it can be easily implemented. Implementation of a project begins in the planning stages and continues through construction completion, start-up and operation. It includes bringing together the local and state governments; system owners and operators; the regulatory agencies; and the state and federal funding agencies.

One of the approaches to project implementation is the "regional approach." This involves the coming together of several local governing bodies to combine their efforts to solve a common need. The advantages and benefits of the regional approach include: the sharing of the liability of the system; placing the local bodies in a more favorable positioning with the regulatory and funding agencies; stimulation of economic growth and development; and increasing the project's feasibility by providing a larger customer base to distribute project costs and cost increases over the life of the project.

D. **Recommendations** - This study has identified and evaluated alternatives for providing a cost-effective, environmentally sound, and implementable wastewater collection and treatment system to serve the Central Accomack County Area.

The recommendations of the study include the construction of vacuum sewerage collection systems to serve the Towns of Accomac, Onley, and Melfa and the Graysville and Tasley areas of Accomack County. The vacuum sewerage collection system was chosen because of its lower construction cost due to construction techniques and for its inherent ability to not develop an infiltration/inflow problem.

Treatment of the wastewater from the project is recommended to be at the Town of Onancock Sewage Treatment Plant which will be expanded to a capacity of 0.600 MGD. The expansion of the Onancock STP was chosen because of its lower cost and because Onancock Creek can support an increased wastewater discharge without resulting in additional condemnation of new or existing shellfish waters.

It is further recommended that the Town of Onancock undertake an Infiltration/Inflow (I/I) study of the existing collection system to evaluate and eliminate sources of I/I. The reduction in I/I flow will also make available additional capacity in the treatment plant for future development.

It is clear from the study that the most cost-effective approach to provide wastewater treatment for the Central Accomack County area is the "regional approach." The advantages and benefits of this approach are discussed above. In order for this approach to function, it is critical that the adopted plan receive a "buy-in" from all participating localities. It is the opinion of the Engineer that the option which provides the largest potential for success is the formation of a regional ***Authority*** consisting of representatives from the Towns of Accomac, Melfa, Onley and Accomack County. The Authority would finance, construct, and operate the collection system in these areas and deliver wastewater to the Town of Onancock for treatment. The Town of Onancock would be responsible for financing, constructing, and operating the treatment facility and their collection system.

The Authority would be composed of two (2) representatives from each of the localities and one ex-officio member who would be the Executive Director of the Planning District Commission. These representatives would be appointed by the locality with one representative being from its governing body and the other an "at-large" citizen member. The Authority would elect its own chairman, vice-chairman, secretary/treasurer and would hire an executive director who would be responsible for the daily operation of the organization.

The responsibilities of the Authority would be to develop the policy and procedures which will be followed by the organization; to set user rates and fee schedules; to provide policy directives and supervision for the Executive Director; and to carry out any other duties established in the by-laws and organizational documents.

The member localities should consult with their representative legal councils concerning enabling legislation for the formation of the Authority, however, in general this guidance is given in Virginia Water & Sewer Authority Act of 1950. The member localities, through their existing governing bodies, should work to establish the methods and the legislation necessary to form the Authority and that this formation be done in as much of a simultaneous manner as is possible. The member localities would, through the development of by-laws, establish the terms of service of the authority members, any compensation which they were given, and the "charge" of the Authority (their duty and mission statement). It would be the responsibility of the governing bodies to make sure that the members which they appoint to the Authority understand the by-laws and the mission statement. Once created, any changes to the by-laws or the legislation establishing the Authority would need to be approved by the member localities in whatever manner prescribed by law.

System allocation is very much subject to change with the negotiations between the various member localities, however as a starting point, we would recommend that the allocation in the treatment plant be established on a pro-rata basis in accordance with existing and projected flows from each of the member localities. The Town of Onancock has the highest existing flow and may indeed have the largest need for projected future flows. If this is the case, then Onancock would have an allocation larger than any of the other localities. Once these allocations are established, the charges associated with the operation and maintenance of the treatment facility can then become a matter of mathematics.

The ownership of the various collection and transport systems is also a matter for discussion. For example, each locality could own and operate their own collection system, or the Authority could own and operate all collection systems. It is the opinion of the engineer that the latter is the preferred case since the Towns of Accomac, Melfa and Onley and Accomack County currently do not have staffs experienced in operation and maintenance, and the provision of additional staffs would seem to be an unnecessary duplication of effort. It may be well, however, to postpone a final decision on this matter as long as possible in order to determine the ultimate impacts on funding of the project which ownership of parts of the system might have.

It is the Engineer's opinion that the Authority's operation will need to be solely funded by rates generated from the operation of the system under the Authority's jurisdiction. It will be necessary, however, during start-up for the Authority to have "seed money" for some items. This money will be needed for legal fees associated with the Authority's establishment and money for legal council to represent the Authority. Money will also be necessary to pay the Executive Director until revenue is generated from the Regional System. Clerical staff will not be needed, in our opinion, until later in the process and, therefore, money for this need not be budgeted.

When the funding package for the project is formulated, initial operating capital should be budgeted to keep the Authority in good financial condition until revenue begins to be obtained from various users of the system. Assistance from the administrative and management staffs of the various member localities will be needed in formulating a budget for these expenses and to discuss the physical location of the Authority's offices.

Specific recommendations that result from this study are as follows:

1. This report be reviewed by the Central Accomack County Sewer Study Committee and that the recommendations of this report, or as they may be amended, be adopted by the Committee.

2. This report be presented to the governing bodies of the Towns of Accomac, Onancock, Onley and Melfa and Accomack County.

3. The recommendations of this Study be approved by the local governing bodies.

4. The local governing bodies begin the process to create the "regional authority" to implement the recommended project contained in this Report.

5. This Report, as approved, be submitted to the Virginia Department of Health and State Water Control Board for review and approval.

6. The project funding process be initiated with a meeting of the funding agencies and representatives of the local governing bodies, to prepare application for the next funding cycle.

7. Application be made to the State Water Control Board for appropriate modifications to the VPDES Discharge Permit.

8. The local governing bodies should establish, adopt and implement measures that will ensure maximum customer participation and financial support for the project.

9. The local governing bodies consider for authorization, a scope of engineering services, for the design and preparation of construction plans, specifications, contract documents, and operational instructions.

10. The local governing bodies confirm with the Engineer, a detailed time schedule for implementation of the project, include design, reviews, public hearings, construction and startup.

A summary comparison of constructing a regional project, and a project without the Town of Onancock follows.

PROJECT COST SUMMARY[1]
CENTRAL ACCOMACK SEWER PROJECT

	REGIONAL PROJECT W/ONANCOCK	REGIONAL PROJECT W/O ONANCOCK	TOWN OF ONANCOCK
Project Cost	$9,228,000	$8,333,000	$1,031,000
Number of Equivalent Residential Connections (ERC)[2]	1,614	1,024	590
Average Cost Per ERC	$ 5,717	$ 8,138	$ 1,747
Average Cost Per ERC Per Quarter[3]	$ 87.53	$ 107.54	$ 96.86
Average Cost Per ERC Per Month[3]	$ 29.18	$ 35.85	$ 32.29

Cost for same ERC at current Onancock rates $63.10 per quarter ($21.03 per month)

Notes:

[1]See Project Cost Analysis in Section IX for additional and detailed information.

[2]ERC = 100 gal/person x 2.3 persons/connection x 90 days/quarter

[3]Assumes Funding from Farmers Home Administration, Virginia Revolving Loan Fund, and Virginia Department of Housing and Community Development; See Project Cost Analysis for detailed information.

[4]Costs are based upon 100 percent participation of all customers/users in the service area.

I. INTRODUCTION

A. Purpose and Scope

The purpose of this study is to identify and evaluate alternatives for a cost-effective, environmentally sound and implementable wastewater collection and treatment system for the central Accomack County area.

In order to achieve this purpose, the scope of the facilities planning process is threefold:

1. To evaluate existing conditions in the planning area, both environmental and physical, and to project future conditions which will aid in the development and evaluation of waste treatment alternatives to solve the problem;

2. To choose the plan which will best solve the problem, basing final selection on cost-effectiveness, environmental soundness, and ease of implementation; and

3. To present the preliminary design for the selected plan which will provide the basis for subsequent preparation of construction documents.

B. Project Area

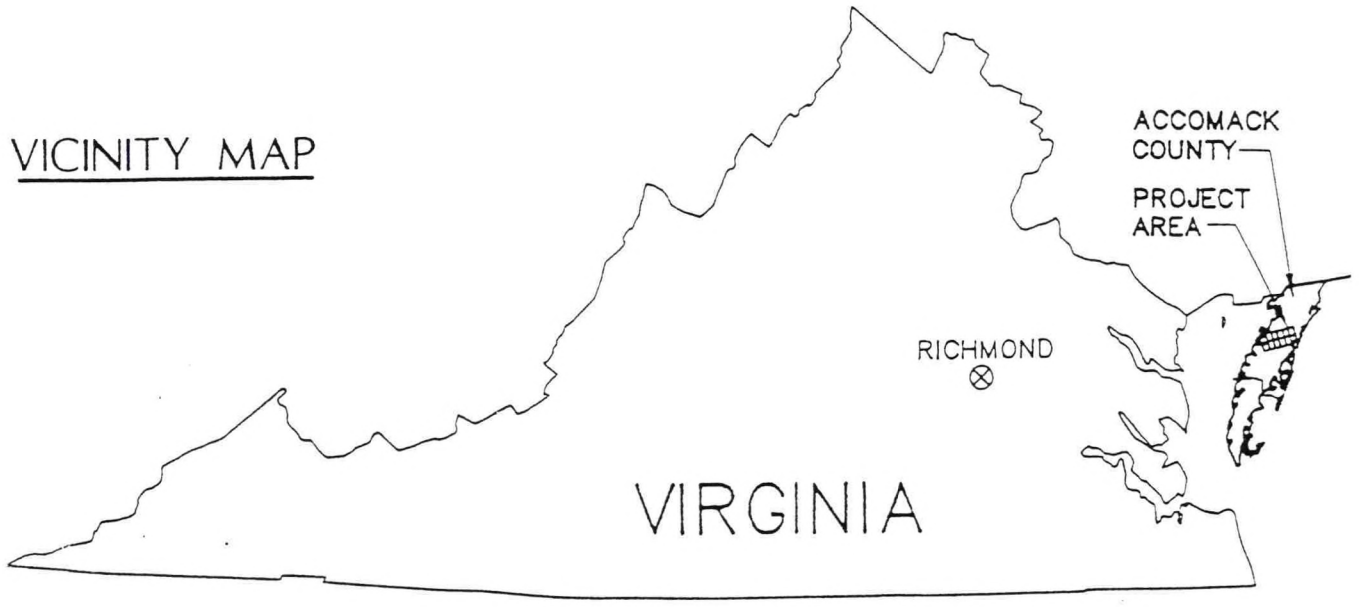
The project area boundaries appear in the 1991 Planning Grant Application for the Virginia Community Development Block Grant (VCDBG). The map appears in this report as Figure 1. The project area includes the Towns of Accomac, Onley, Melfa and portions of Accomack County. Although not part of the VCDBG project area, the Town of Onancock is included in this study because it has an existing wastewater collection and treatment system. A 40-year planning period is required by the Virginia Department of Health and State Water Control Board's Sewerage Regulations, in the sizing and design of major sewers. Planning periods of 20 to 40 years are also recommended for sizing and design of treatment facilities.

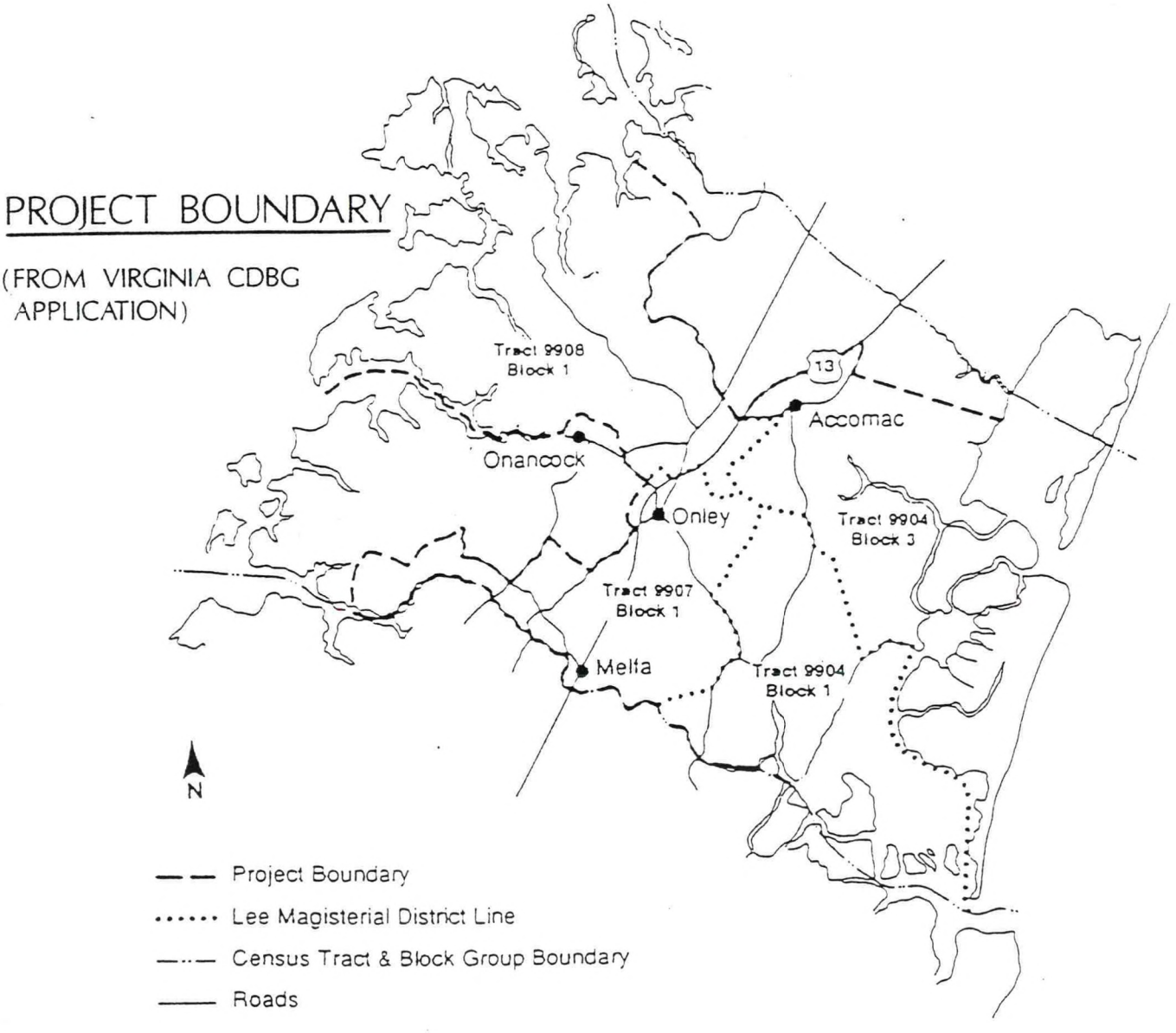
C. Project Area Characteristics

Accomack County is Virginia's easternmost County. Accomack was a name given to the area by the Indians that means "across-the-water place." Accomack County is approximately 600 square miles in size. This County is

FIGURE 1

CENTRAL ACCOMACK SEWER STUDY





bordered by the state of Maryland to the north, Northampton County to the south, the Chesapeake Bay to the west and the Atlantic Ocean to the east. In 1990 the County population was 31,703.

The project area, shown in Figure 1, is near the center of the County and shares many similar characteristics with the rest of the County. A large portion of this area is agricultural land or forest. Concentrations of development have evolved near deep water creeks and along railroad depots, which were established at road crossings. Within the developed areas, the land is used for residential, business and commercial, industrial, educational and recreational purposes. There are some residential areas that have a more concentrated area of development than others. These areas include the incorporated Towns of Accomac, Onley, Melfa, and Onancock as well as some other unincorporated communities such as Tasley.

The project area is bisected by the U.S. Route 13 corridor. Three of the towns are located at or near this highway. Commercial and business establishments continue to locate along this corridor with the most recent concentration being near Four Corners (intersection of Route 13 and Route 179) in Onley.

Ground water is the only source of potable water in this project area, as well as the whole Virginia Eastern Shore. The project area is located within the Eastern Shore Ground Water Management Area. Ground water is obtained by pumping from underground aquifers. The main aquifer recharge source is the "spine" recharge area located near the center of the County along Route 13. The quantity of ground water is limited and the quality is, in general terms, acceptable. The concern is to maintain good quality groundwater by good management.

Accomack County lies within the Atlantic Coastal Plain. Soils consist of approximately 40 inches of loam to sandy loam soil with a continuous sand strata below. A seasonal high water table determines, for the most part, the use of these soils for agricultural purposes. The well drained soils, suitable for development and agricultural purposes, tend to be located in the central part of the County.

D. Previous Reports

Several reports and studies have been completed concerning Accomack County and the Accomack-Northampton Planning District. Some of these reports have been summarized below with an emphasis on the key issues as they relate to this study.

Water and Sewer Development, 1968, Comprehensive Plan for Accomack County

The main concern concluded by this report is the source of financing. It was recommended to borrow funds from the County Board of Supervisors to start an "Authority." Once in operation, the authority was to purchase existing water systems and borrow funds to construct new facilities. The report also concluded that the lack of these new water and sewer facilities is restraining the growth of the County.

Water Quality Management Plan, 1974, for Accomack-Northampton Planning District

This report proposed several recommendations. It was recommended that service areas be established to meet existing and future water quality protection needs. The report recommended that multiple discharges be eliminated. Sewer service is proposed for areas in need and an upgrade is proposed for the Onancock treatment facility.

Water Quality Management Plan, 1980, for Virginia's Eastern Shore

This plan, completed by the Virginia Water Control Board (VWCB), discusses the waste load allocations for discharges into state waters. It identifies several "water quality problem areas." Areas with coliform problems include Chesconessex Creek, Deep Creek, Folley Creek, Finney Creek, and Pungoteague Creek. Some of these coliform levels exceed the stringent standards for safe shellfish harvesting. This plan outlines the policies and goals for water quality as well as monitoring programs.

Comprehensive Plan, 1989, for Accomack County

This plan was prepared by the Accomack County Planning Commission and was adopted by the Board of Supervisors in September 1989. This report encourages development in locations with suitable soils for further development. This report addresses minimum lot size and number of lots that require public systems. The report defines the goal of the County as being "to achieve, throughout the entire County, a balanced and compatible pattern of land uses that protects and conserves agricultural land, forest land, ground water, surface water, wetlands and other valuable resources while simultaneously allowing for planned growth that stimulates economic opportunities for County residents."

Ground Water Supply Protection and Management Plan, 1992, for Virginia's Eastern Shore

This study points out that the only water source for this area is ground water. In the attempt to protect the quality of this water, the recommendations include restricting the location of new mass drainfields in the central area of the Eastern Shore. These types of systems produce "a major point source of nitrogen loading and bacterial contamination to the Columbia Aquifer."

II. EXISTING CONDITIONS

A. Individual Septic Systems

Most of the septic systems in the area are old and were installed according to less than current stringent standards. Many of the systems would not be approved under current regulations. The repair rate for these systems is high and will continue to rise due to the age of the systems. As the new Chesapeake Bay Regulations are implemented, the septic tanks within the area that drain to the west will have to be pumped once every five years. This is a good maintenance standard and should apply to all septic tanks.

The Towns of Melfa and Onley, as well as parts of Tasley, have areas where the shallow depth to groundwater prohibits the installation of subsurface disposal systems. Permit requests are denied when these conditions are present. A large portion of the land in these areas that is undeveloped has these characteristics.

The Town of Accomac has better separation of surface and groundwater, but the remaining areas to be developed occasionally lack sufficient land area to support septic systems. According to the local health department, there have been a few attempts in the past to establish a restaurant in the area, but the land would not support the septic system. The option of pumping the wastewater to another site for subsurface disposal was found to be cost prohibitive.

The existing septic tanks from both Accomack and Northampton Counties are pumped by two companies that discharge into three privately owned facultative lagoons. These lagoons are not lined and have no current discharge. The lagoons have no Virginia Water Control Board (VWCB) permit. The receiving lagoons will be used more frequently in the future, as the requirements for pumping septic tanks increase.

According to the Groundwater Supply Protection and Management Plan for the Eastern Shore, 1992, these lagoons "can threaten the ground water quality because they contain concentrations of organisms close to that of primary wastewater sludge." This plan also points out that these lagoons are not under the authority of the 1982 regulations due to a grandfather clause and recommends that ground water quality monitoring should continue in order to detect if these lagoons are having an adverse impact on the water quality.

B. Onancock Sewer System

The Town of Onancock owns and operates the only Public Owned Treatment Works (POTW) in the project area. The wastewater treatment facility has a capacity of 250,000 gallons per day (gpd). The average daily flow for the previous

12 months was 135,600 gpd. Daily flows within each month vary widely, for example in September 1992, daily flows peaked at 350,000 gpd. The system serves 690 connections in the Town; several businesses and commercial establishments along Route 13 at Onley; and the Airport Industrial Park.

The Onancock sewage collection system was constructed in three phases. The first phase consisted of clay pipe; there are no existing plans for this system. Thus the age of this phase is unknown. Manholes have been added to this phase whenever portions of the sewer are located. There is no other access to this system. The second phase is approximately 30 years old. The third phase of the system is between 15 and 20 years old. However, the plans that are available for these phases are not accurate or complete.

The treatment plant is an extended aeration facility with chemical/physical settling, pressure filters and ultraviolet disinfection. There is a 500,000 gallon emergency holding pond equipped with a tablet chlorinator that receives incoming wastewater during periods of high flow. This volume is returned to the headworks once the peak subsides. If the holding pond fills and the plant is at capacity, then the untreated wastewater passes through chlorination and is discharged into the outfall to Onancock Creek.

The discharge permit for the facility is administered under the Virginia Pollution Discharge Elimination System (VPDES). This permit establishes effluent quality limits that must be met by the treatment facility. The parameters of this permit deal with the Biochemical Oxygen Demand (BOD_5), which is the five day oxygen demand of the treated effluent, and the total quantity of suspended solids (TSS) in the treated effluent. The permit requires the effluent quality of 10 mg/l of BOD_5 and 10 mg/l of TSS. The permit expires in March 1993. There may be new and more stringent effluent quality limits and monitoring parameters with the re-issued permit. By reviewing recently issued permits from other treatment facilities and by discussions with the State Water Control Board, several new parameters can be anticipated. These parameters include monitoring for lead and copper and possible limits for ammonia-nitrogen and organic nitrogen, otherwise known as Total Kjeldahl Nitrogen (TKN).

The existing facility produces approximately 180 tons of sludge each year. At one time the sludge (biosolids) was land applied on a local farm. The farmer grew increasingly worried about the possibility of adverse impacts in his soils and discontinued use of the biosolids. For some time the Town searched in vain for another location for land application. There was also an attempt to compost the sludge, but this was discontinued. The dewatered sludge is now transported 25 miles to the Northern landfill. The tipping fees at this landfill increased in September 1992, to a cost of approximately $20 per ton.

The monthly and daily flows records at the plant for the period between August 1991 and July 1992 were reviewed along with the monthly water system production records for the same period. According to the American Society of Civil Engineers (ASCE) manual on Existing Sewer Evaluation and Rehabilitation, approximately 80 percent of the yearly water produced should be received by the wastewater treatment facility. Comparing this value with the actual wastewater, flows can provide a quantitative estimate on the condition of the collection system with respect to infiltration/inflow (I/I). As shown in Table 1, the average recorded sewer flows are a little higher than the projected sewer flows from the water production data.

This indicates that there are minor infiltration problems within the system. Further review of the data reveals high flows during periods of heavy rains which indicates that the problem of Inflow is significant. A detailed analysis of the Town's sewer collection system is beyond the scope of this study. However, preliminary budgetary considerations have been included in later sections of this report.

TABLE 1

Town of Onancock
Water Production vs. Sewage Flow

MONTH	WATER PRODUCTION (GPD)	SEWAGE FLOW (GPD)	SEWAGE FLOW AS PERCENT OF WATER PRODUCTION
Aug 1991	175,458	127,419	91
Sep 1991	164,337	122,167	93
Oct 1992	164,045	125,742	96
Nov 1991	153,510	113,833	93
Dec 1991	148,735	113,258	95
Jan 1992	144,097	123,581	107
Feb 1992	150,583	129,552	108
Mar 1992	145,861	142,226	122
Apr 1992	150,077	134,467	112
May 1992	162,461	153,290	118
Jun 1992	171,333	176,600	129
Jul 1992	182,855	165,452	113
Aug 1992	-	207,161	

The Town completed some investigative work, including smoke testing, to determine the extent of the I/I problems within the collection system. There was a partial I/I study completed during 1985. All of this information, as well as the flow records, indicate an extensive I/I problem exists in the collection system.

Although some of the sources of the I/I have been found and corrected, many have not and still contribute to the problem as evidenced by the flows recorded during periods of heavy rain.

In order to make a more accurate determination of the location and magnitude of the I/I problems in the Onancock sewer system. A detailed and comprehensive infiltration/inflow identification and reduction study should be initiated. Upon completion of the I/I Study, the scope of magnitude and location I/I sources can be used to evaluate the costs for repair (to remove the I/I flow) verses the costs to treat the I/I flow.

C. Existing Onancock Treatment Facility Evaluation

The existing Town of Onancock sewage treatment plant is located on the North Branch of Onancock Creek. The rated and permitted plant capacity was noted at 0.25 mgd from the as-built plans provided by the Town.

The plant site area has generally been filled to an elevation of 8.0 NGVD. Based on FEMA Flood Insurance Maps, the 100-year flood elevation is 5.0 NGVD. Access to the site is from Virginia Route 658. A description and evaluation of existing treatment units is provided below.

GRIT CHAMBER: The existing grit chamber consists of a single aerated channel with a valved bypass. An airlift pump is used for grit removal.

MECHANICAL BAR SCREEN: The existing mechanical bar screen is 3 feet wide with a 7/8 inch clear opening space between bars. A rake is used to remove debris from the bar rack. The rake arm is powered by a hydraulic pump.

INFLUENT PUMP STATION: The existing pump station consists of 4 submersible solids handling pumps. The maximum station capacity is 520 gpm.

CLARIFIER/DIGESTER: The tank is approximately 35 feet in diameter and is not in use.

PACKAGED TREATMENT PLANTS: Two 44.5 feet diameter steel treatment plants are used for biological treatment. The treatment process consists of the extended aeration mode of the activated sludge process.

Each plant consists of an aeration basin, secondary clarifier, air lift sludge return pumps, aerobic sludge digester and blowers. The treatment units have the capability of operating in the contact stabilization mode as well as the extended aeration mode.

DOSING TANK: Two rectangular steel tanks provide flow equalization prior to chemical treatment. Each tank is provided with two submersible pumps to convey secondary clarifier effluent to the chemical treatment system. Diffused aeration is provided within both tanks to insure homogenized wastewater conditions.

CHEMICAL TREATMENT: The existing chemical treatment system consists of two steel tanks with separate compartments for flash mixing, flocculation settling and sludge holding. Alum and lime are use to condition wastewater prior to filtration.

PRESSURE FILTERS: These units consist of steel tank vessels with sand media designed for a filtration rate of 3 gpm/sq. ft. The pressure filters are currently being bypassed.

CHLORINE CONTACT TANK: The tank is not in use; it has been replaced by a Ultra Violet Light (UV) Disinfection System.

UV DISINFECTION: The existing disinfection system uses vertical lamps in a horizontal channel to disinfect wastewater flows.

LABORATORY: The existing laboratory has approximately 400 sq. ft. of floor space and 57 sq. ft. of countertop area.

DRYING BEDS: The existing sludge drying beds consist of six separate sand beds with a total area of 5,700 sq. ft. Three of the beds are covered with translucent roof panels and wood structure to prevent rainfall onto the beds and aid the drying process.

The design capacity of the treatment units are shown in Table 2.

TABLE 2

Existing Treatment Unit Capacities

UNIT	DESCRIPTION	CAPACITY (MGD)
Bar Screen	3 Ft. Width	0.25
Grit Chamber	3 Minute Detention	0.90
Aeration Basin	125,000 Gallons Each	0.25
Secondary Clarifier	21' Dia. @ 1000 gpd/sq. ft.	0.27
Aerobic Digester	53,900 gal. (20% Qa.)	0.27
Drying Beds	5700 sq. ft. 6 beds	0.24
U.V. Disinfection	200/100 ml	0.25
Chemical Treatment	Alum/Lime	0.24

III. Population and Wastewater Demands

A. Population

The population in Accomack County has fluctuated greatly since 1930. The recent trend is a slow steady growth between 1980 and 1990 of approximately 1.4 percent. The 1989 Accomack County Comprehensive Plan outlined the population information and projected populations into 2000.

This plan was completed in 1989, therefore, the population for 1990 was not available, now that this data is available, the percent of population increase was applied to the actual 1990 population in order to project the growth into 2000.

Of the three population projection methods discussed in the Accomack County Comprehensive Plan, the lowest predicted increase between 1990 and 2000 was 1.48 percent and the highest was 2.76 percent. These values are applied to the actual 1990 data to project the population of the County for 2000. The population information is outlined below in Table 3.

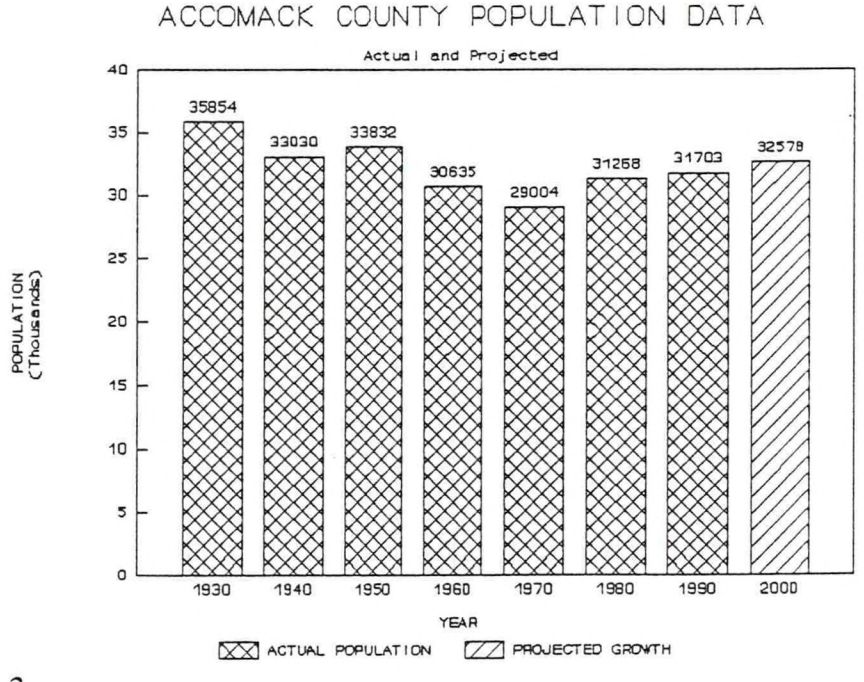


TABLE 3

Based on the 1990 U.S. Census, the three Towns of Accomac, Onley, and Melfa have a total population of 1426 residents. This total is about the same as the population of the nearby Town of Onancock. The individual town populations are identified below in Table 4. When the population of each town is divided by the estimated number of households, the resulting number is the estimated population per household. This ranges from 2.2 to 2.6 persons per dwelling. The average is 2.3 persons per dwelling and will be used for the average household population for this study.

TABLE 4

1990 U.S. Census Data

TOWN	POPULATION	HOUSEHOLDS	AVERAGE POPULATION PER HOUSEHOLD
Accomac	466	182	2.6
Onley	532	238	2.2
Melfa	428	179	2.4
Onancock	1434	645	2.2
County	31,703	15,840	2.0
		TOWN AVERAGE	**2.3**

As mentioned earlier, it is estimated that the projected growth rate for the County is from 1.48 percent to 2.76 percent between 1990 and 2000. This rate of growth is a County-wide value and will be applied to all towns and communities within the project area.

Several factors influence the growth rate of this area of the County. One of these factors is the proposed construction of central sewer facilities. This will stimulate the location of additional residences and businesses within the sewer service area. So the resulting growth will be channeled into this area and may be equal to or greater than the projected growth rate.

Another factor is the recent adoption of the 1989 Accomack County Comprehensive Plan. This Plan defines the County objective as to "Delineate land areas best suited to meet the needs for residential, commercial, industrial and institutional activities, as well as those best suited for agricultural, forestry, conservation and park land." The policies that are recommended to obtain this objective encourage and direct growth into these areas. Growth is to be concentrated towards existing areas suitable for growth.

While all of the above factors of the projected growth rate are important to the actual projection of future sewer needs, there is a more limiting factor. The amount of undeveloped area within a town is the maximum potential growth that can be expected.

Based on review of the town tax maps, the existing developed areas and the areas suitable for development, each town has only a certain amount of area left for development. The approximate areas in each town that are open for development are shown in Table 5. Assuming most of the remaining town growth is primarily residential, the estimated maximum possible growth can be determined; See Table 5.

There are several remaining unincorporated areas, or communities, within the project area. The number of households in each of these communities have been estimated by review of the County E911 mapping, USGS mapping and actual field verification. These communities appear later in this section in Table 7.

TABLE 5

Estimated Maximum Growth for Towns
Based on Remaining Area for Future Households

TOWN	EXISTING HOUSEHOLDS	ESTIMATED PERCENT OF UNDEVELOPED AREA	ADDITIONAL HOUSEHOLDS	TOTAL HOUSEHOLDS
Accomac	182	25%	45	227
Onley	238	33%	78	316
Melfa	179	20%	35	214
Onancock	645	20%	129	774
TOTAL	**1244**	-	**287**	**1531**

This is the maximum residential growth possible and translates into a comparative growth rate of approximately 5.3 percent every 10 years for the towns. There are now three growth scenarios including low growth, high growth, and maximum growth. These are summarized below in Table 6.

TABLE 6

Estimated Growth Scenarios for Towns

	EXISTING HOUSEHOLDS	LOW GROWTH (1.48%/10 YRS. UNTIL 2030)	HIGH GROWTH (2.76%/10YRS. UNTIL 2030)	MAXIMUM GROWTH
Accomac	182	193	203	227
Onley	238	252	265	316
Melfa	179	190	200	214
Onancock	645	684	719	774
TOTAL	**1244**	**1319**	**1387**	**1531**

The scenario chosen to project future residential sewer demands for this study is the high growth scenario. As shown in Table 6 this scenario projects moderate growth that is within the maximum growth limits. The current number of 1244 households is projected to increase by 143 households for a total of 1387 households for the towns. This growth is summarized in Table 7. The growth of communities within the project area have also been projected using the high growth scenario. This will show an estimate of the number of additional homes in each area that can be expected in 2030. The results of these estimates also appear below in Table 7.

TABLE 7

Projected Growth Summary

TOWN	CURRENT HOUSEHOLDS	GROWTH PROJECTIONS BY 2030
Accomac	182	203
Onley	238	265
Melfa	179	200
Onancock	645	719
Community Name or Description		
1. Tasley*	89	99
2. Deep Creek, at Rt. 657	75	84
3. Rt. 658 near Rt. 661	73	81
4. Graysville, Rt. 609*	64	71
5. Dogwood and Redwood Rd. (Rt. 639 and 609)	52	58
6. Savageville, Rt. 718	46	51
7. South Chesconessex, Rt. 655	46	51
8. Daugherty, Rt. 648 and Rt. 605	46	51
9. Rt. 658 near 735	42	47
10. Rt. 609 and Rt. 648	38	42
11. Locustville	34	38
12. Chesconessex, Rt. 656	31	35
13. Texaco Town Rd, Rt. 731, 639 near 625	30	33
14. Schooner Bay, Rt. 802	20	22
15. Mt. Nebo Road, Rt. 634 at Rt. 637	16	18

*** These communities have been included in the initial service area discussed below.**

B. Wastewater Demands

1. Initial Service Area and Sewer Demands:

The proposed initial service area consists of the Towns of Accomac, Onley, Melfa and Onancock, the communities of Tasley and Graysville, and the County's Airport Industrial Park. Wastewater demand (flow) projections for these areas are discussed below.

The Town of Onancock has both a central water system and a central sewer system. Existing wastewater demands can be analyzed using this data. The other Towns do not have central water systems, so wastewater demands must be estimated. The Virginia Sewage Regulations provide estimated values to calculate the amount of daily sewage flow from different types of customers. Based on the estimated household population of 2.3 persons per dwelling and the value of 100 gpd per person. The average flow per day per dwelling is 230 gpd per dwelling.

The typical establishments found in the service area along with the estimated wastewater demands are detailed below in Table 8.

TABLE 8

TYPICAL ESTABLISHMENT AND ASSOCIATED WASTEWATER FLOWS

Business/Office	25 gpd Per Employee
Service Station	10 gpd Per Vehicle Served
Doctor's Office	500 gpd Per 1,000 sq. ft.
Restaurant	50 gpd Per Seat
Shopping Center	200 gpd Per 1,000 sq. ft.
School with Showers	16 gpd Per Student
School without Showers	10 gpd Per Student
Laundromat	500 gpd Per Machine
Motel	130 gpd Per Room

Within the Town of Accomac there are approximately 182 households. There is also the County Office Complex with about 50 employees; the County Primary School with 350 students and teachers; the County Jail with approximately 95 inmates and 17 employees; a bed and breakfast inn; several churches and many small businesses. Just outside of Town is the area of Graysville that includes approximately 64 households.

Within the Town of Onley there are approximately 238 households. There are also several churches and restaurants; a motel; concrete plant and a laundromat (with approximately 29 washing machines); several small businesses; a seafood business; an animal hospital; and a community pool.

Within the Town of Melfa there are approximately 179 households; a motel; an apartment building; a few churches; and several small businesses.

The Accomack County Airport Industrial Park is located near Melfa. Although no large industry currently occupies the park, wastewater collection facilities are in place and an allocated flow of up to 50,000 gpd for the park is reserved at the Onancock Facility as an existing demand for potential customers. Of this 50,000 gpd allocation, the Industrial Development Authority (IDA) has passed on approximately 43,500 gpd to the commercial establishments along U.S. Route 13 in Onley. These establishments use the IDA system. The remaining balance of the allocation for the IDA is 6,500 gpd. Any industrial user(s) that generates wastewater flows greater than this will require the IDA to negotiate with the Town of Onancock for an increase to their allocation.

The Town of Onancock POTW has been operating with an average daily flow of 135,600 GPD (from August 1991 to July 1992). This flow includes the commercial establishments along U.S. Route 13 that are currently contributing 43,500 gpd of wastewater to the Onancock facility through the IDA system. Included in this area is the Comfort Inn, Kentucky Fried Chicken, McDonalds and the Ponderosa Restaurant. These customers also generate approximately twenty-five (25) percent ($42,000) of the annual revenue for the Onancock sewer system.

The area of Tasley includes approximately 89 households; several businesses; a grocery store; a chemical company; and the Whispering Pines Motel.

The existing wastewater demands for the initial service area include demands from Accomac, Onley, Melfa and Onancock. Demands from Tasley and the Airport Industrial Park reserve demand are also included and are shown in Table 9.

TABLE 9

Initial Service Area
Existing Wastewater Demands

AREA	ESTABLISHMENT	DEMAND(GPD)	TOTAL(GPD)
Accomac	182 Residences	230	41,860
	64 Residents in Graysville	230	14,720
	39 Small Businesses	150	5,850
	1 Large Business	300	300
	County Jail	9,900	9,900
	County Office Complex (50 Emp.)	25	1,250
	Primary School (350)	3,500	3,500
	Inn - 10 Guests	650	650
	6 Churches	200	1,200
	Accomac Subtotal		**79,230**
Onley	238 Residences	230	54,740
	35 Small Businesses	150	5,250
	4 Large Businesses	300	1,200
	Motel - 25 Units	3,250	3,250
	Restaurant	1,000	1,000
	Concrete Plant	500	500
	Laundromat (28 Machines)	14,000	14,000
	7-Store Mall	700	700
	5 Churches	200	1,000
	1 Community Pool	400	400
	Onley Subtotal		**82,040**
Melfa	179 Residences	230	41,170
	17 Small Businesses	150	2,550
	2 Large Businesses	300	600
	Motel - 20 Units	2,600	2,600
	Apartments - 4 Units	920	920
	3 Churches	200	600
	Melfa subtotal		**48,440**

TABLE 9 (Cont.)

Initial Service Area
Existing Wastewater Demands

AREA	ESTABLISHMENT	DEMAND(GPD)	TOTAL(GPD)
Tasley	89 Residences	230	20,470
	12 Small Businesses	150	1,800
	2 Large Businesses	300	600
	Whispering Pines Motel 30 Units	3,000	3,000
	Tasley Subtotal		**25,870**
Onancock	Actual Flow from Town		92,100
	I.D.A. Customers		43,500
	I.D.A. Reserve Remaining		6,500
	Onancock Subtotal		**142,100**
	Total Wastewater Demands		**377,680**

2. Future Service Area Sewer Demands

By 2030 the growth expected within the initial service area will have increased the initial wastewater demands. The increase in households as well as new business and commercial establishments will contribute to future demands. Using the projected number of households the future residential demands can be established. The future business and commercial demands can be estimated by making some assumptions on growth.

It is assumed that once a central sewer system is constructed, the number and quality of residential services will increase. This increase, by 2030, may be substantial. For estimating future wastewater demands, the existing business and commercial demands have been estimated to increase by 25 percent within the towns. This translates into about 5.5 percent increase every 10 years. The one exception is Onley. The commercial flow along U.S. Route 13 has been doubled, but is assumed to occur in the County, outside Onley and between Melfa and Accomac.

It is also assumed that the County's Airport Industrial Park will be occupied by one or more customers that will utilize the 50,000 gpd original reserved capacity for the Park. This flow combined with the residential, business and commercial demands will project future wastewater demands. The results appear in Table 10.

Future wastewater demands have been projected for the individual residential communities in Table 11. Although it is not cost effective to provide service to these areas initially, except for Tasley and Graysville, as shown later in Section VII, projected demands for the communities have been included in this section for future reference. Once the initial wastewater collection and treatment facility is in operation and a customer base is established, these communities should be reviewed on a case-by-case basis to determine if service is economically feasible.

TABLE 10

Future Service Area
Projected Wastewater Demands

AREA	ESTABLISHMENT	DEMAND(GPD)	TOTAL(GPD)
Accomac	Initial Demand	-	79,230
	21 Residences	230	4,830
	7 Residences (Graysville)	230	1,610
	10 Small Businesses	150	1,500
	1 Large Business	300	300
	Accomac Subtotal		**87,470**
Onley	Initial Demand	-	82,040
	27 Residences	230	6,210
	9 Small Businesses	150	1,350
	1 Large Businesses	300	300
	Onley Subtotal		**89,900**

TABLE 10 (Cont.)

Future Service Area
Projected Wastewater Demands

AREA	ESTABLISHMENT	DEMAND(GPD)	TOTAL(GPD)
Melfa	Initial Demand	-	48,440
	21 Residences	230	4,830
	5 Small Businesses	150	750
	1 Large Businesses	300	300
	Melfa Subtotal		**54,320**
Tasley	Initial Demand	-	25,870
	10 Residences	230	2,300
	3 Small Businesses	150	450
	1 Large Businesses	300	300
	Tasley Subtotal		**28,920**
Onancock	Initial Demand	-	142,100
	74 Residences	230	17,020
	15 Small Businesses	150	2,250
	1 Large Business	300	300
	Onancock Subtotal		**161,670**
County	Proposed Industrial Park		50,000
	Future Service Areas		120,000
	County Subtotal		**170,000**
	Total Future Wastewater Flows		**592,280**

TABLE 11

Estimated Future Flows For Communities

TOWN Community Name or Description	FUTURE HOUSEHOLD	FLOW PROJECTIONS
1. Tasley*	99	22,770
2. Deep Creek, at Rt. 657	84	19,320
3. Rt. 658 near Rt. 661	81	18,630
4. Graysville, Rt. 609*	71	16,330
5. Dogwood and Redwood Rd. (Rt. 639 and 609)	58	13,340
6. Savageville, Rt. 718	51	11,730
7. South Chesconessex, Rt. 655	51	11,730
8. Daugherty, Rt. 648 and Rt. 605	51	11,730
9. Rt. 658 near 735	47	10,810
10. Rt. 609 and Rt. 648	42	9,660
11. Locustville	38	8,740
12. Chesconessex, Rt. 656	35	8,050
13. Texaco Town Rd, Rt. 731, 639 near 625	33	7,590
14. Schooner Bay, Rt. 802	22	5,060
15. Mt. Nebo Road, Rt. 634 at Rt. 637	18	4,140

* These communities have been included in the initial service area.

IV. ALTERNATIVES

A. Collection System Alternatives

The majority of the areas to be served are relatively flat with the three towns being located in the center and near the highest elevations in the region. Creeks and streams originate in town and flow west to the Chesapeake Bay or flow east eventually to the Atlantic Ocean. In a review of the Soil Inventory of the area, many areas have a depth to groundwater of less than 3 feet. These areas where groundwater is close to the surface make up approximately 50 percent of the Town of Melfa and between 50 and 67 percent of the Town of Onley. In these towns, this will cause construction costs of collection systems at depths below the groundwater to be higher than normal construction costs. The Town of Accomac has an area between 25 and 33 percent with this concern. Based on these characteristics, three types of collection systems have been evaluated. They are:

1. Gravity Sewer System: This system consists of 8" gravity sewer or larger with 4 ft. diameter manholes to receive wastewater by gravity from each connection and convey it to a pump station or a series of gravity sewers and pump stations. The pump station pumps the wastewater through a force main to the proposed treatment facility or into another system that will convey it to the treatment facility.

2. Vacuum Sewer System: This system consists of a vacuum main, a pump station, and a small tank that receives the wastewater by gravity from each home or business. When the tank is full, a valve opens and the vacuum main empties the pit by vacuum into the collection tank at the pump station.

The pump station then pumps the wastewater through a force main to the proposed treatment facility or into another system that will convey it to the treatment facility. This system is ideally suited for areas with high ground water and relatively flat terrain. This system will be discussed later in greater detail.

The vacuum sewer system was introduced in the United States in the early 1970's along with the pressure sewer system as an alternative collection system. Since then several advancements have made this system extremely reliable. The Virginia Sewerage Regulations provide design criteria for this system. The closest operating vacuum sewer systems are in Matthews County, Virginia (225 connections); Somerset County, Maryland (238 connections); and Queen Anne's County, Maryland (3,500 connections).

The vacuum system operates on a vacuum pressure created at the vacuum collection station. Wastewater flows from the residence, or other connection, by gravity to a 3 foot diameter pit with a valve and controller. When the controller senses the pit is full, it opens the valve connecting the pit to the vacuum collector main. Wastewater is drawn into the main by the vacuum created at the main station. Vacuum pumps maintain the adequate vacuum to operate the system at the station. When the station is full, effluent pumps located in the station pump the wastewater to the treatment facility.

The system is installed similar to a water system. There are no manholes and the pipe, usually PVC or ductile iron, is installed in narrow trenches just below the frostline. In areas of high groundwater, this can translate into significant savings during installation. The advantages to this system are many. There is no infiltration into this system or exfiltration from the system. The alarm and monitoring system detects immediate system problems, unlike gravity systems where problems may go unnoticed and worsen over time.

The disadvantages of this system deal with effectiveness and service. The standard system cannot operate at heads of greater than 20 feet but with modifications, the system can operate at heads up to 40 feet. The system is not economical for areas with fewer than 50 connections. The system must also be repaired within a reasonable amount of time as uncorrected problems will cause further system problems.

3. Pressure Sewer System: This system consists of a small grinder pump station at each connection, a small force main "lateral," a large common force main and a pump station. Although this system allows for a shallow depth of installation, a preliminary costs indicate that the system cost, long term operation costs and the maintenance and replacement costs often make the overall cost of this system prohibitive. Due to these high costs, a pressure sewer system was not further considered.

The proposed facilities are shown in Section V.

B. Treatment Plant Discharge Point Location Alternatives

Four treatment plant discharge locations have been evaluated for the central sewer system treatment facility discharge. These locations are: (1) the existing Onancock Creek discharge point; (2) a new "creek" discharge point; (3) a discharge offshore into the Atlantic Ocean; and (4) land application of the wastewater.

All discharges are reviewed by many State agencies for compliance with current regulations. One of these agencies is the Virginia Health Department Division of Shellfish Sanitation. The Division of Shellfish Sanitation monitors all waters suitable for shellfish harvesting to determine water quality. When the water quality falls below acceptable standards, the Division of Shellfish Sanitation must condemn the area to prohibit harvesting of shellfish. The condemned areas are either temporarily closed until water quality improves or closed indefinitely because of no hope in improvement of water quality.

Within Accomack County, there are over 7,000 acres of condemned shellfish areas. This includes parts of Onancock Creek, Chesconessex Creek, Pungoteague Creek, and Folly Creek. The Division of Shellfish Sanitation has indicated that there is some hope that water quality may improve in Chesconnessex, Pungoteague and Folly Creeks to allow a reduction in the condemned area or even removal of the area from the condemnation list. The condemnation of the portion of Onancock Creek is indefinite with no expected improvement in water quality. The poor water quality is due to many contributors which include failing or non-existent septic systems, agricultural runoff, marina runoff, residential yard runoff, street and driveway runoff as well as others. One specific contributor to the poor water quality of Onancock Creek mentioned by the Division of Shellfish sanitation was the periodic overflow or by-passes from the Onancock treatment facility. This is the only point source discharge that they feel can, and should, be reduced or eliminated.

This is important when discussing the location of a potential wastewater treatment facility discharge. The Virginia State Water Control Board (VWCB) is the discharge permitting authority and is required to consider the shellfish condemnation potential for each new discharge into potential shellfish producing waters. The VWCB must have the Division of Shellfish sanitation review the impacts of the new proposed discharge on the receiving stream if the receiving stream is classified as a potential shellfish producing water. The Division will determine if any of the following scenarios will occur: 1 - condemnation of a new area; 2 - increase of an existing condemned area; 3 - an area permanently condemned that had the possibility of improvement. If any of these three scenarios are predicted, then by Virginia law, the VWCB must deny the permit for a new discharge.

There is a process by which a local group may petition to overturn this permit denial. It must be demonstrated that the treatment facility will provide a greater benefit to the community than the adverse impact of the shellfish condemnation. It has been done before and requires complete local support. If no other alternatives for discharge are feasible, then this process may be necessary.

1. Onancock Creek

The existing wastewater treatment facility discharges into Onancock Creek, a tributary of the Chesapeake Bay. The existing permitted flow is 250,000 gpd with effluent quality limits of 10 mg/L BOD_5 and 10 mg/L TSS.

The expansion of the existing discharge was discussed with the Division of Shellfish Sanitation (DSS) as to the impacts on Shellfish waters. The DSS determined that a discharge of up to 600,000 gpd (including the 250,000 gpd capacity of the existing facility) could be located on Onancock Creek, with no additional condemnation. The existing condemnation area along Onancock Creek extends upstream from Onley Point.

The SWCB has indicated that effluent quality limits for a new discharge or for an increase of the current discharge to Onancock Creek would in all probability be the current limits of 10 mg/l of BOD_5 and 10 mg/l of TSS with the addition of TKN limit of 3 mg/l and the addition of lead, copper, and zinc monitoring. Effluent quality limits are important to the design and cost of a treatment facility. Based on the information above, the preliminary design limits for an outfall to Onancock Creek are 10 mg/l of BOD_5 and 10 mg/l of TSS and 3 mg/l of TKN (10/10/3), and will be used when evaluating treatment process alternatives.

2. New Creek Discharge

The possibility of using other creeks as a discharge point was also evaluated. As discussed above, many creeks have current shellfish condemnation areas. Most all creeks in this area have some impact on shellfish waters.

Again, the Division of Shellfish Sanitation was contacted to discuss this alternative. According to the DSS, location of a discharge of any size on any other creek would result in either a new condemnation, an extension of an old condemnation or a permanent condemnation of a site that has potential to improve. This will force the VWCB to deny any discharge permit applications. Even if a discharge permit was granted for one of these other creeks, the required effluent quality limits would be as stringent or more so than the 10/10/3 limits expected for the Onancock Creek discharge, according to the VWCB.

There is also strong local concern for water quality. Any discharge to a new creek will probably be met with local opposition. The quality of surface waters is an integral part of local business, recreation and beauty and now more than ever residents see water quality as a resource that needs to be protected. Based upon the preliminary discussions and information from the VWCB and the Division of Shellfish Sanitation, the possible receiving creeks for a treatment facility discharge have been limited to the Onancock Creek.

3. Atlantic Ocean Discharge

The possibility of using an offshore outfall for discharge into the Atlantic Ocean was also evaluated. The VWCB recently (February 1991) reissued an Atlantic Ocean Discharge Permit for a large wastewater treatment facility located in Virginia Beach. The outfall terminus of this discharge is located approximately 1.8 miles offshore. The effluent quality limits are 30 mg/l BOD_5 and 30 mg/l suspended solids. The VWCB indicated that these limits could be expected for a facility that is located in Accomack County with a discharge to the Atlantic Ocean. These effluent quality limits are considerably less stringent than the Onancock Creek limits. This outfall alternative decreases the level of treatment required while adding an expensive and environmentally adverse ocean outfall.

A facility discharging to the ocean will only have to meet 30/30 limits. This means that the level of treatment can be reduced. Tertiary filtration units will not be required. Disinfection may also be reduced to chlorination with no dechlorination. These reductions result in some initial capital as well as future operation and maintenance savings.

The ocean outfall is probably the most significant increase in cost to this alternative. This type of outfall is usually pursued for large treatment facilities. As mentioned earlier in this report, the VWCB recently reissued an ocean discharge permit for a 36 mgd facility. In conversation with the owners of this facility, it was determined that the costs associated with construction of an ocean outfall are significantly high. The outfall would consist of a force main that must be installed under the bay so as not to impede navigation of the Virginia Inland Passage. The outfall must pass over or through the tidal flats depending on regulatory requirements. This will either require an installation over the flats on concrete piers or will require a subaqueous crossing with reconstruction or mitigation of the disturbed area.

The construction of the offshore portion of this outfall will require mobilization and equipment costs for specialty offshore construction. The installation cost as well as the cost of the protection materials (such as large riprap or concrete collars) also add significantly. The outfall portion project cost alone may be as much as 4 million dollars. In conversation with municipalities that are familiar with costs of this type of outfall, indications are that approximate costs per linear foot may be as high as $1,000. There is new technology called "Directional Drilling" that may be used for installation of an ocean outfall by means of drilling from land and "pulling" the pipe into place. This method is estimated at $500 per foot which results in 4 million dollars in construction costs.

The environmental impacts of this ocean outfall associated with the required crossing of an inland bay, tidal flats, and Cedar Island, are significant and may

eliminate this option regardless of cost. Construction of the outfall will impact the delicately balanced ecosystem of the tidal flats and marshes from the mainland to Cedar Island. Construction methods may minimize but cannot avoid some negative impacts to this area. If not carefully reconstructed, the marsh and flats that were weakened during construction could be swept away with tidal flow creating a new channel through the shallows. There will also be the impact of construction to Cedar Island. Even if the impacts of construction are adequately minimized, the possibility of future impacts cannot be avoided. These impacts are due to periodic maintenance and outfall section replacement. This outfall will be subject to many forces not associated with landside sewer locations and periodic maintenance is expected.

The disadvantages outweigh the benefits of the ocean outfall alternative. The effluent quality limits allow for a lesser quality of treatment resulting in some initial cost and future maintenance savings. But the expense of the ocean outfall construction cost is more than the treatment savings. The environmental impacts are also significant. Due to these issues, this alternative has not been further considered.

4. Land Application

The land application of wastewater has also been evaluated as a possible discharge solution. According to the Virginia Sewage Regulations the wastewater treatment required must meet effluent quality limits of 60 mg/l of BOD_5 and must be disinfected prior to land application. In this alternative, the soil between the surface and water table must treat the wastewater. Although this will allow for a less complicated facility design and operation to achieve the required effluent quality, there is the concern for adequate land available for the large volume of daily effluent to be applied, as well as possible impacts to the quality of ground water.

The effluent quality limits will require a less complicated aerated lagoon treatment facility. This is a two-cell or three-cell lagoon. The lagoon must be lined to eliminate seepage into the ground water. The effluent must pass through disinfection prior to discharge. This requires a chlorine contact tank capable of providing a minimum contact time of 30 minutes at the spray rate. Dechlorination is not required.

The storage requirements are significant. The minimum holding period is 60 days. This is to provide storage during times when climatic conditions or nutrient levels prohibit the spraying of effluent. A minimum of 1.5 feet pond depth must be maintained and not counted as storage. This results in a 30 million gallon holding lagoon with an additional 7 million gallons at the 1.5 feet depth.

There is a requirement also for reserve spray area. This is 25% of the required land for the daily flow. This reserve area must be capable of being operational within 30 days of notice.

The factors to consider when choosing the site for the land application of effluent include soils and soil conditions, absorption capacity of the soils, depth to both seasonal and permanent water tables, as well as availability for land acquisition, land use and public acceptance. The site must also meet regulatory requirements. The two resulting primary factors are soil absorption rate, which determines the amount of land required, and availability of land for application of the effluent.

The application rate of the soil is the value of the capacity of the soil at the potential site to receive the effluent. To determine an approximate application rate, the characteristics of the soils found within the project area must be considered. This application rate is based on the site having soil characteristics of the Bojac - Munden - Molena Soil Association. The remaining soil associations of Nimmo - Munded - Dragston and Chincoteague - Magotha are found on the far east and far west of the area and is usually poorly drained soils and unsuitable for land application.

The two soil series present, Bojacano Molena, are fairly suitable for land application, but there are two limiting factors that will reduce the application rate. One is the depth to the water table. According to the Sewage Regulations, a rapid infiltration system requires a site with the permanent ground water table at least 15 feet below the site surface. This system is not suitable for this area. The other type, slow rate infiltration, is more suitable for the project area.

The minimum depth to the permanent water table should be 5 feet for a slow rate infiltration site. A depth of 3 feet to the seasonal water table should also be present at the site. The regulations indicate that if these depths are less, then reduction in the application rate must be made.

The other limiting factor is nutrient removal. The application rate is also based on the amount of nutrients to be removed from the wastewater. This alternative uses a lagoon for initial treatment. The soils must provide for final treatment before the effluent reaches the water table. The more that nitrogen, chloride and sodium can be initially removed, the smaller the land requirements may be needed, but this adds to the cost of treatment. For this alternative, the lagoon will remain as the initial method of treatment.

Based on the soil characteristics and the hydrogeology of the project area, the soil application rate for a site in this area is a design rate of 0.30 inches per acre per week. These rapidly permeable soils will not provide effective treatment of the wastewater if saturated by an application rate that is too high. This rate will be

used to estimate the amount of land, repair area and buffer zone required for the design flow. If this alternative is chosen, a detailed site analysis will be required and will yield the permitted application rate which may be slightly higher or lower than the design rate of 0.30 inches.

The Sewage Regulations define the field area by the following equation:

Field Area (Acres) = Q/D x [365/(365 - S)]

Where:
Q = Wastewater flow in acre - inches per week
D = Application rate in inches per week
S = Storage time (60 days)

For a design flow of 600,000 gpd, (154.68 acre - inches per week) and an application rate of 0.30 inches/week, the resulting required area is:

Area = 154.68/0.30 x [365/(365 - 60)] = 617 acres

The reserve area, 25 percent of the field area is approximately 154 acres. The total field area is 771 acres, which does not include buffer zone or site access and treatment lagoons. The required buffer zone must also be estimated when determining the land requirements of this alternative. According to the setback distances, the fields must be at least 200 feet from the nearest property line and at least 50 feet from surface waters. Based on an area of 771 acres, the buffer zone is estimated to be as much as 250 acres.

The total amount of land, including field area, buffer zone, access roads, lagoons and non-sprayed areas between fields is approximately 1,000 acres. This is an extremely large amount of land for the County to acquire. There may not be adjoining parcels to total this need. If the land parcels are spread out over the County, the system to spray the effluent will be pumping a substantial distance. Assuming a land value of $1,500 to $2,500 per acre, the land purchase alone will be between 1.5 and 2.5 million dollars.

The main concern for this alternative is the land required for land application of effluent. Based on the design application rate and current regulations the estimated land required is approximately 1,000 acres. This land must be located as close as possible to the project area to be cost effective when pumping the effluent for spraying. The site or sites must yield an application rate of at least 0.30 inches per acre per week or additional land will be required. The minimum distance of 5 feet from the surface to the water table and 3 feet from the surface to the seasonal water table must be present at the site or sites. This will be a very

difficult, if not impossible, task of acquiring the needed land with an acceptable application rate. Due to this difficulty, this alternative has not been further considered.

C. Treatment Alternatives

The wastewater generated from the service area is expected to be primarily domestic in nature. Sewer use guidelines and pretreatment guidelines will be required for the system. Therefore, the following assumptions for treatment facility influent have been made:

BOD_5	240 mg/L
TSS	240 mg/L
Total Kjeldahl Nitrogen (TKN)	30 mg/L
Phosphorous	10 mg/L

Based on discussions with and information from the Virginia Water Control Board, the discharge limits for various locations are assumed to be as shown below. These limits will be used to evaluate possible treatment processes and schemes for the Central Accomac Sewer System.

For an Onancock Creek Discharge (0.600 MGD), the limits are:

PARAMETER	LIMIT
BOD_5	10 mg/L
Suspended Solids	10 mg/L
TKN	3 mg/L
Phosphorous	5 mg/L
Dissolved Oxygen	6.0 mg/L
pH	6-9 units
Fecal Coliform	200/100 ml

The following sewage treatment alternatives have been evaluated:

1. Expansion of the Town of Onancock Plant
2. A new "regional sewage treatment plant"
3. A new "regional treatment facility" without Onancock participation
4. Multiple/individual treatment facilities

Cost estimates for these alternatives can be found in Section VII of this report.

1. **Expansion of the Existing Town of Onancock Plant**

The site of the existing Onancock treatment plant and adjacent County-owned land is adequate for the proposed expansion. Additional land may be needed for buffer zone control. One concern with the existing site is the proximity of residences to the treatment units. A 400 ft. buffer zone between treatment units and public structures will be required by the Virginia Sewage Regulations. It is anticipated that the character of the wastewater will be amenable to either biological treatment by activated sludge process or chemical treatment processes. The design capacity of the treatment plant is 600,000 gpd with consideration given to future expansion. Preliminary design is in accordance with the draft sewage regulations and the final plans and specifications will be approved by the Virginia Health Department and State Water Control Board prior to construction.

The alternative to upgrade the existing Onancock POTW includes use of the current extended aeration process option. This option employs a suspended growth biological treatment technique where wastewater is mixed in deep (15-18 feet) aeration basins. The mixing keeps bacteria and other microorganisms in suspension where they act to remove soluble pollutants from the wastewater, break them down into simpler compounds and metabolize these into solid cell material. Aeration provides oxygen to the microorganisms and also provides the required mixing. Following aeration, the liquid/cell mixture (mixed liquor) flows to quiescent secondary clarifiers where the solid microorganism cell material settles out as sludge. A portion of the sludge is drawn off to waste.

The remaining sludge is recycled to the aeration basin to maintain a high concentration of living microorganisms in the aerated mixed liquor and to maintain cells of sufficient age to metabolize the wastewater compounds. The liquid wastewater passes through the aeration basin in approximately 24 hours, but the average sludge cell stays in the system 7-10 days.

This process is presently occurring at the Onancock plant within the two packaged treatment units. In order to increase the plant capacity to 600,000 gpd two additional package treatment units would be constructed. The total aeration basin volume would be 600,000 gallons for the combined (existing and proposed) units. Positive displacement blowers and coarse bubble diffusers matching existing equipment would be provided in the new units for aeration and mixing.

The chemical treatment system would also be essentially duplicated with two additional units. Flash mixing, flocculation and sedimentation would be used to condition the wastewater prior to filtration. Chemical treatment is needed to remove the remaining suspended solids from the secondary clarifier. An added benefit of the chemical treatment system is the removal of phosphorous from the wastewater.

Secondary clarifier effluent would be pumped from the existing dosing tanks to the flash mix basins. The flash mix basin provides thorough mixing of the wastewater with coagulating and pH control chemicals. Mixing is accomplished by mechanical agitators. The next stage of the treatment process consists of slow mixing in the flocculation basin. This action allows the coagulating chemical to physically and chemically combine with impurities in the water to form floc particles. The floc particles are allowed to settle out of solution in the sedimentation basins and any particles remaining in the process flow are filtered out of the water by the mixed media gravity filters.

A new filtration system is proposed for the entire plant flow since the existing pressure system is not operated. The unit would consist of two packaged traveling bridge type gravity filters. This type of filter is divided into several cells with a cell by cell traveling bridge system for individual cell backwash. The existing pressure filter would be abandoned.

After filtration, disinfection would continue to be accomplished using ultraviolet light systems prior to discharge to Onancock Creek. A duplicate system compared to the existing one would be constructed. Due to receiving stream water quality concerns, an emergency generator for backup power generation and duplicate treatment units will be required.

The sludges generated in the biological process will be stabilized through aerobic digestion. Chemical sludges will be stored within the chemical treatment system holding tanks until dewatered. Both chemical and stabilized biological sludges will be dewatered using a mechanical plate and frame press. Sludge disposal could be by land application or co-disposal in a landfill.

This alternative would include the following:

- Install new grit pump
- Install new mechanical screen
- Install (3) new influent pumps
- Repair and paint two existing prefabricated treatment units.
- Install two new treatment units
- Provide additional blowers, piping and diffusers

- Install two chemical treatment systems consisting of flash mix, flocculation, sedimentation and sludge holding
- Demolish chlorine contact tank, pressure filters and clarifier/digester
- Construct additional chemical storage and feeding equipment facility for alum and lime
- Make miscellaneous repairs to existing chemical treatment units
- Install additional UV disinfection system
- Install sludge dewatering plate and frame press
- Construct new laboratory
- Provide emergency generator

2. New Regional Sewage Treatment Facility

Several options were evaluated for the solution of existing and anticipated future water quality problems. The selected option chosen will provide the most cost effective solution for meeting the future wastewater requirements.

The design capacity of the treatment plant is 600,000 GPD, with consideration given to future expansion. Treated effluent will be discharged to Onancock Creek. Preliminary design is in accordance with the draft sewage regulations, and the final facility plans must be approved by the Health Department and Water Control Board.

The treatment process options are evaluated based upon performance, reliability, capital cost and operating cost.

The process options evaluated are as follows:

a. Oxidation Ditch
b. Aerated Lagoon Extended Aeration (Biolac System)
c. Sequencing Batch Reactor
d. Natural Treatment System (Lemna System)

a. Oxidation Ditch

This process is a variation of the extended aeration activated sludge process.

This alternative employs a suspended growth biological treatment technique, where wastewater is mixed and recirculated in a closed channel. Mechanical aerators (discs) are used for mixing, aeration and for circulation of mixed liquor. This action keeps bacteria and other microorganisms in suspension, where

they act to remove soluble pollutants from the wastewater, break them down into simpler compounds and convert these into solid cell material. The aerators must supply sufficient energy to maintain a minimum channel velocity of 1 foot per second and provide oxygen to the microorganisms.

The oxidation ditch proposed consists of three (3) endless aeration channels, arranged concentrically in an oval shape. Provisions must be made to dewater either channel while providing continuous operation in the other channel.

This process has a very long sludge age, in the range of 25 days, and has a 24 hour detention time, and the inherent ability to nitrify; that is remove virtually all ammonia from the wastewater. Looking to the future, the plant could be modified by constructing a recycle line to provide nutrient removal. The three channels with recycle offers the ability to biologically remove nitrogen and phosphorus, which could very likely be a future requirement of the discharge permit. Operational flexibility is available in that the aeration disc submergence is automatically varied by the flow rate, thus reducing the electrical usage during period of low flow. Additional operational cost savings may be available by varying the number of discs in each channel, or by decreasing disc rotation. These modifications can be used after start-up when flows are far below design flow to save on electrical expenses.

Extended periods of operation at low flow poses no major drawbacks to the plant's performance. Very high plant flows (such as flows with I/I problems) can be handled by operating the oxidation ditch in the stormwater bypass mode where high influent flows are isolated in one channel.

Following aeration, the liquid/cell mixture ("mixed liquor") flows to a quiescent secondary clarifier where the solids settle out as sludge. A portion of the sludge is drawn off to waste. The remaining sludge is recycled to the aeration basin to maintain a high concentration of microorganisms in the aerated mixed liquor and to maintain cells old enough to metabolize the wastewater compounds.

Two final clarifiers will be provided to separate the activated sludge from the effluent. The circular clarifiers are each 36 feet in diameter based on operating at a surface loading rate of 1000

GPD/SF at peak flow. A sludge return pump station will be provided to pump settled sludge back to the aeration basins and waste sludge to the digesters.

The secondary clarifiers will be provided with flocculation equipment within the center feedwell of each clarifier. A coagulant such as polymer or alum would be fed to the feedwell on a seasonal basis to enhance removal of colloidal material. Following the secondary clarifiers will be gravity filtration. The filtration system consists of two packaged traveling-bridge type units. Each unit is divided into several cells and provided with a traveling bridge system for individual cell backwash. Plant effluent from the secondary clarifiers may be of sufficient quality to bypass filtration but to reliably meet effluents limits filtration is expected to be required by the Virginia Health Department.

After filtration, effluent disinfection would be accomplished using ultraviolet light irradiation. Ultraviolet light disinfection avoids the use of chlorine which may result in harmful toxic compounds in the plant effluent.

A large volume of sludge is produced by the activated sludge system and requires stabilization prior to disposal. The Virginia Sewage Regulations require a minimum sludge digester capacity of 20 percent of the plant flow and single basins are allowed for facilities up to 0.5 MGD. The proposed digester basin will have the capacity of approximately 120,000 gallons, and will be aerated by diffused air.

After the sludge has been digested, it will be dewatered using a mechanical sludge press. At this time, landfill disposal of the sludge is proposed, however, consideration should be given to locating an approvable site for land disposal of the sludge.

This alternative would include the following:

- Headworks grit removal and screening
- Influent pump station
- Oxidation Ditch (3 channels)
- Secondary clarifiers (2)
- Sludge return pumps and telescoping valve station
- Gravity filters
- Chemical feed equipment
- Ultraviolet light disinfection
- Sludge dewatering plate and frame press and building

- Aerobic sludge digestion and blowers
- Laboratory
- Emergency generator
- Effluent flow metering

b. <u>Aerated Lagoon Extended Aeration (Biolac)</u>

This process is also a variation of the extended aeration activated sludge process. The treatment process would occur within earthen basins in lieu of reinforced concrete structures. The earthen basin would be constructed primarily above existing grade using compacted fill material in a berm. The top elevation of the berm is proposed at least 1 foot above the 100-year flood elevation. The basin interior would be lined with an impermeable membrane liner and provide a minimum of 46 hours hydraulic detention. The aeration system proposed is the Biolac System as manufactured by the Parkson Corporation. This system incorporates floating air main lines and fine bubble diffusers. The floating air main lines oscillate slowly on the water surface due to air released at the diffuser. The movement of the diffuser along with the fine bubble aeration increases mixing efficiency and oxygen transfer compared to fixed location diffusers. The diffusers proposed are Flex-a-tube as manufactured by Wyss. This diffuser minimizes fouling by the flex action and should require minimal maintenance. An integral secondary clarifier which utilizes air lift type sludge pumps and mechanical rakes for sludge scrapping is also proposed. The process has a very long sludge age, in the range of 50 to 60 days. This process also has the ability to biologically convert ammonia-nitrogen to nitrate nitrogen (nitrification). Two separate basins are provided for continuous operation with one unit out of service. Air for the process is provided by three positive displacement blowers. The treatment process is patented technology by the Parkson Corp.

Following the secondary clarifiers would be the chemical treatment system consisting of flash mix, flocculation and sedimentation. The chemical treatment would be needed for this option to condition wastewater prior to filtration. The chemical treatment is needed since the integral clarifier cannot be provided with a flocculation system as proposed in Option a. The chemical treatment system will basically consist of dual tankage as described in the Onancock wastewater treatment plant expansion option (Option a).

A gravity filtration system followed by ultraviolet light disinfection as proposed in Option a. would also be used in this option. The aerobic digester would also be used for sludge stabilization as described in Option a. The major components of this option are as follows:

- Headworks grit removal and screening
- Influent pump station
- Aerated Lagoon Biolac System
- Sludge return pumps
- Chemical treatment system
- Gravity filters
- Ultraviolet light disinfection
- Sludge dewatering plate and frame press
- Aerobic sludge digestion
- Laboratory
- Emergency generator
- Effluent flow metering

c. **Sequencing Batch Reactor**

This option also employs a suspended growth biological treatment system where wastewater is mixed in aeration basins but the treatment process is in "batches" instead of in a continuous flow. The treatment system is a form of extended aeration activated sludge in which the wastewater flow approximates plug flow conditions. The sequencing batch reactor system consists of dual basins in which timed processes sequentially take place. By treating the flow in batches the aeration basin can be utilized for secondary clarification instead of constructing secondary clarifier basins. The process consists of the following steps:

Step 1. - Fill	Step 3. - Settle	Step 5. - Idle
Step 2. - React	Step 4. - Draw	

The fill operation allows wastewater to flow into only one basin at any time. During the fill, basin contents are mixed but not always aerated. The raw wastewater is mixed with the basin mixed liquor with pumps.

After filling the basins the contents are mixed and aerated with jet aeration pumps. Jet pumps are used since diffusers have a tendency to clog during settling conditions. After the predetermined reaction time the suspended solids are allowed to settle. Since there isn't

incoming wastewater the liquid solids separation occurs near ideal quiescent conditions. At this point the clarified effluent is drawn off but the sludge remains in the basin thereby eliminating the need for sludge return pumping. The idle step represents the time between the filling of the second basin and completion of draw off from first basin. During high flow conditions, where the first basin would completely fill before the second basin has completed discharging, the raw wastewater would be diverted to the discharging tank through a baffled inlet chamber.

Operational controls are automatic and combines time data and float level switches to activate equipment. The influent flow is alternated by means of mechanically operated valves. The jet pump in combination with blowers provides aeration requirements for anoxic and aerobic conditions. A complete backup jet pump system is provided for each basin.

Advantages of the sequencing Batch Reactor are the reduction in initial construction costs since return sludge facilities and secondary clarifiers are not needed. Another advantage is the flexibility in treatment since the length of reaction time can be varied to meet desired effluent quality. Also nitrification and denitrification occur almost simultaneously as a result of high Dissolved Oxygen (D.O.) conditions suitable for nitrification near the aerator jet nozzle with localized low D.O. conditions as the mixed liquor circulates through the basin. Filtration, ultraviolet disinfection and aerobic sludge digestion is proposed for this option as described in Option a.

This option would include the following:

- Headworks grit removal and screening
- Influent pump station
- Sequencing Batch Reactor basin and controls
- Flow equalization basin
- Gravity filters
- Ultraviolet light disinfection
- Chemical feed equipment
- Sludge dewatering plate and frame press
- Aerobic sludge digestion
- Laboratory
- Emergency generator
- Effluent flow metering

d. LEMNA Process

This process utilizes aquatic vegetation to provide "natural treatment" of the wastewater. The treatment process occurs within multiple earthen lagoons. The lagoons would be constructed as described in Option b but would require a significant increase in volume. Approximately 130 days hydraulic detention would be needed for necessary treatment. The lagoons would be divided in multiple cells functioning primarily as a waste stabilization pond. The aquatic vegetation provides the final polishing of the effluent prior to further treatment. The aquatic vegetation proposed in the treatment process is Lemnaceae or more commonly known as duckweed. Duckweed is a small floating naturally occurring plant consisting of one or more leaves but no stem. The Duckweed species ranges in size from 0.5 mm to 1.00 mm in diameter and floats on the lagoon surface. The special treatment occurs as the Duckweed completely covers the pond surface creating an anaerobic environment. The lack of sunlight in addition to the anaerobic conditions prevent algae growth and associated solids problems. The anaerobic condition adds in sludge decomposition with little additional energy needed. Duckweed removes pollutants from the waste flow through absorption through the roots and leaves. Excessive Duckweed growth can impair treatment and seasonal harvesting is needed. This harvest is usually disposed at an approved landfill site. The treatment system is a patented technology by the Lemna Corporation.

Support facilities needed in addition to the LEMNA Ponds are as follows:

- Headworks for grit removal and screening
- Influent pump station
- Chemical treatment system for solids removal
- Gravity filtration
- Ultraviolet light disinfection
- Duckweed harvester and shredder/composter
- Laboratory
- Emergency generator
- Effluent flow metering

Due to the lack of performance data for the LEMNA systems at capacities proposed in this study, the process would be considered experimental by the Virginia Health Department. Experimental processes require posting of a performance bond in amounts adequate to remove and replace the experimental system if the desired performance cannot be achieved. A satisfactory

performance demonstration over a one year period is required prior to receiving final approval to operate. Due to the unproven reliability of the LEMNA process and the added costs of monitoring performance and bonding, we recommend this alternative be eliminated from further evaluation.

e. Summary

In terms of performance, none of the options has a significant advantage or disadvantage over the other. All are well proven technologies and, with the exception of Option d (LEMNA), are considered conventional processes in Virginia. Each of the options would require an outfall to Onancock Creek and since effluent limits would be the same for all options, no option should require a different type outfall. Each of the options would require essentially the same amount of time for construction, therefore, no option would have a time advantage. In all options, sludge disposal is considered to be in the County's landfill. Other options for sludge disposal such as land application and compositing are available but are considered beyond the scope of this study. There are, however, several differences between options primarily due to differing biological processes as summarized below:

a. **Oxidation Ditch**: The inherent advantage of this option is the simplistic operation. Aeration is achieved by mechanical discs requiring only periodic bearing lubrication as the needed maintenance. The electrical controls consist of on/off switches and motor starters. The Oxidation Ditch also provides capabilities of biological nutrient removal with little modification. The other options can provide nutrient removal but this process is easier to maintain.

b. **Biolac System**: The Aerated Lagoon provides stable treatment in the extended aeration mode but the other options also have this same feature. The advantage of this option is reduced electrical costs from the patented aeration system. The drawback of this option is the need for separate chemical treatment to achieve conditioned wastewater prior to filtration. The secondary clarifier does not function as efficiently as the clarifier proposed in Option a. This option cannot easily remove nitrogen and phosphorous by biological means.

c. **Sequencing Batch Reactor**: This process is capable of biological nutrient removal with only operation changes. Advantages are that future effluent limitations could be met without construction costs. This operation should also reduce needed maintenance since clarifiers and sludge return pumps

are not needed. The disadvantages of the system are the complex controls and automated valving necessary to alternate flows between basins. The controls would consist of floats, timers and electric valves connected to a microcomputer. Manual operation during computer downtime would require significantly increased attention of the operator.

For a "new" regional sewage treatment facility option it is recommended that the Oxidation Ditch process be used, due to operational flexibility, ability to perform nutrient removal with minor upgrades and ease of operation. The cost estimate for this alternative is found in Section V of this report.

3. New Regional Treatment Facility Without Onancock Participation

This alternative considers the construction of a new regional sewage treatment plant to serve the project area excluding of the Town of Onancock. The design capacity of the treatment plant is 350,000 GPD, with consideration given to future expansion. Treated effluent will be discharged to Onancock Creek.

The treatment processes considered are those discussed above for the 600,000 GPD facility. The recommended process for this regional facility is the same as above, for the same reasons.

This alternative assumes that Onancock remains independent. The flows to Onancock will continue to include the U.S. Route 13 commercial area and the Industrial Park. Future flows will include any commercial customers that locate along the existing force main between the Industrial Park and the Onancock collection system. The current flow of 135,600 gpd combined with the Industrial Park reserve of 50,000 gpd results in a current demand of 185,600 gpd. This leaves about 20 percent of the plant capacity for growth, within Onancock and within the commercial areas along U.S. Route 13, before the VWCB will require Onancock to submit a facility expansion plan.

4. Multiple/Individual Treatment Facilities

One of the alternatives considered for wastewater treatment is the use of individual treatment facilities for each of the three towns. This includes a separate small treatment facility for each of the three towns, Accomac, Onley and Melfa. Each plant would be located somewhere downstream of each Town. The receiving streams would be Folly Creek for the Town of Accomac, Rattrap Creek for the Town of Onley and Nickawampus Creek for the Town of Melfa. This alternative requires three new discharge permits.

The main concern for this alternative is the fact that all discharge streams impact shellfish waters. As indicated by the Division of Shellfish Sanitation, additional or new condemnation areas could result from a discharge at these locations. To obtain the permits for these facilities will be difficult if not impossible.

Although effluent quality limits, if permits are received for the three facilities, will ensure minimal impact on water quality there will be some degradation associated with the discharges. Each of these creeks has a small drainage area and the resulting instream waste concentration would be high. This will be of great concern to the residents of the area, and may create significant public opposition to this alternative.

Even if these three facilities obtained discharge permits, there are some concerns as to the costs and efficiency of this alternative. Each of these facilities is large enough to require a full-time licensed operator. Each facility will be required to meet stringent limits of the current regulations. Each facility must bear the individual costs of chemicals, laboratory operations and maintenance items.

There is also the issue of increasing wastewater treatment regulations. As indicated by past history, future regulatory requirements may impact the operation and design of current facilities. As the new requirements are implemented, each of these individual facilities must incur the expense to comply. This is less efficient than the impact on one regional facility.

Although the individual treatment facilities alternative provides each town with an independent solution, this alternative is not as efficient and as strong as a regional facility. There is strong local concern for water quality in the receiving streams. There is a concern of being able to obtain discharge permits due to possible shellfish sanitation impacts. Even if discharge permits were obtained, many of the combined operation and maintenance items are duplicated at each of the three facilities. Due to the above concerns this alternative has not been further analyzed.

D. No Action Alternative

Another of the alternatives for wastewater collection and treatment is the "no action" alternative. Although not recommended, the County and Towns may choose not to pursue the construction and operation of a central sewer system. This appears to be the least costly alternative, but the long-term impacts may make this the most costly alternative.

The main concern is the possible threat to ground water quality. The combination of old septic systems and the proximity of ground water to these systems may create areas of potential water quality degradation in the densely populated areas. This concern will increase with time and repairs to existing surface disposal system will increase.

The quality as well as the quantity of residential services within the Towns will remain unchanged or will increase at a slow rate. This is due to the limited amount of undeveloped area that is suitable for a subsurface disposal system. As the laundromats have been forced to do, other establishments may have to address with new expensive requirements that may be cost prohibitive to remain in business or to start a new business.

The Onancock facility must support not only Town growth but Industrial Park customers, current and future commercial establishments along U.S. Route 13 as well as an existing I/I flow that will worsen with time. The Industrial Park was designed to attract industries by providing utilities, one of which is wastewater treatment. 50,000 gpd was originally allotted for this purpose, but most of the reserve is being used by the commercial establishments along U.S. Route 13 near Four Corners in Onley. If this original Industrial Park plan is followed, then the Town of Onancock may be asked to treat the flow from the Industrial Park. If this 50,000 gpd design flow is generated by some future customer, then a moratorium may be issued on additional connections to the Onancock system. One industrial client that needs 50,000 gpd will cause the Onancock facility to operate near capacity. Any future connection may cause the VWCB to require an expansion plan. Additional connections will not be allowed until the expansion is complete.

V. ECONOMIC EVALUATION OF ALTERNATIVES

The following section will evaluate the cost associated with construction and the annual operation and maintenance costs of each of the alternatives. Annual costs will then be equated to a net present worth value for comparison of alternative costs.

A. Construction Costs

These costs are based on unit prices from similar projects as well as recent cost estimating data. Related costs of construction are based on typical budgets associated with projects funded by Federal, State and local agencies. Tables 12 through 22 outline the individual collection system and treatment system costs.

Table 23 summarizes the individual community project cost estimates. These estimates reflect the total project cost if each community was independently served. Combinations of communities may yield the shared use of a force main, resulting in slight construction cost savings. But for an equivalent cost comparison, each community has an associated projected cost for independent service.

B. Operation and Maintenance Costs

These costs include electrical costs, parts, labor and other materials. The net present worth analysis assumes a 5% interest over 40 years (pw factor = 17.1591). The estimated annual operation and maintenance (O&M) costs and the net present worth of these costs for each alternative are shown in Table 24.

TABLE 12

Town of Accomac - Gravity Collection System
Central Accomack Sewer Project
Cost Estimate*

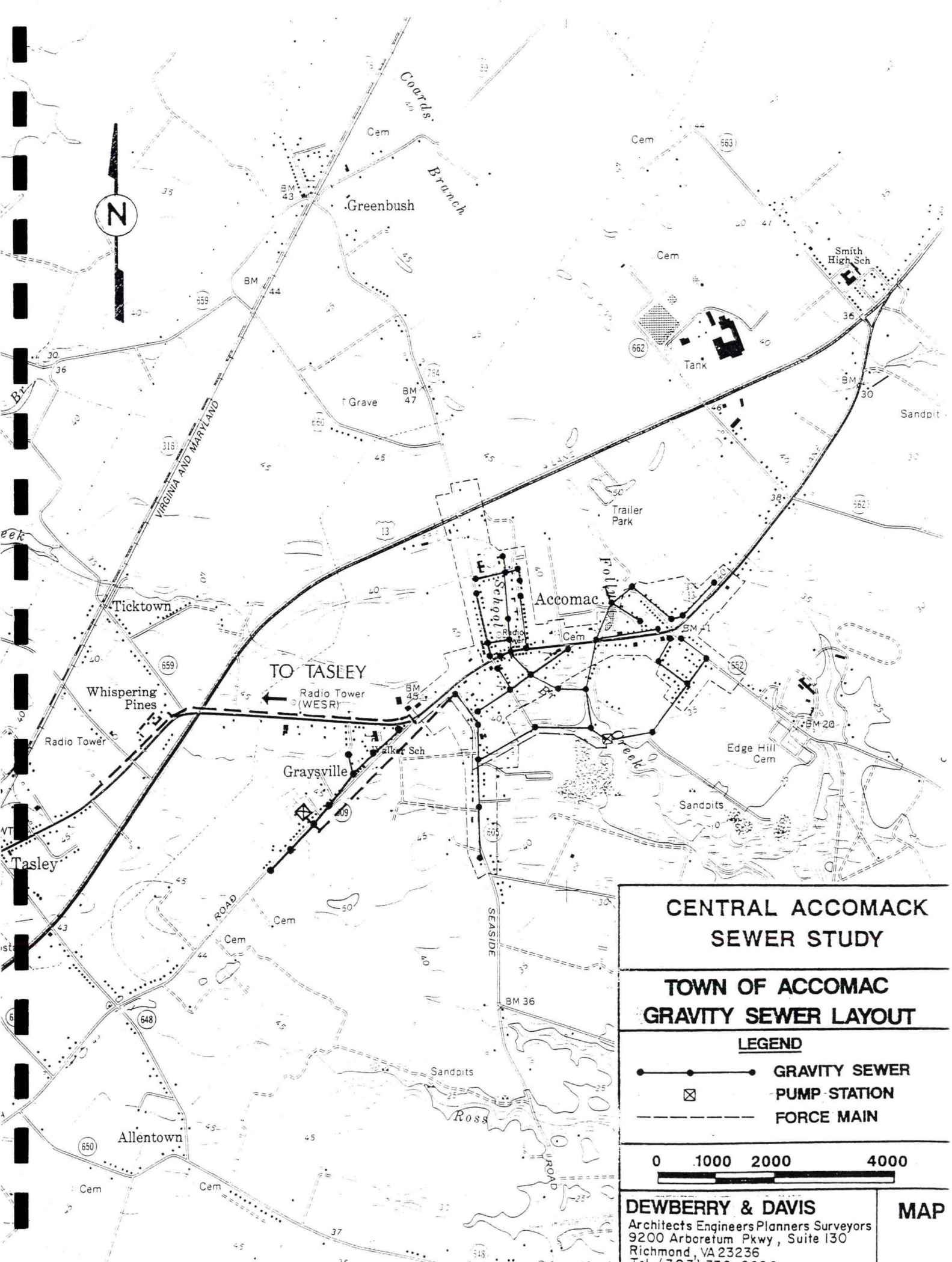
CONSTRUCTION COSTS

LINE ITEM	QUANTITY	UNIT COST	TOTAL
8" Gravity Sewer	28,000 L.F.	$ 40	$1,120,000
Manholes	110 EA.	1,800	198,000
Small Pump Station	1 EA.	50,000	50,000
Force Main	3,000 L.F.	15	45,000
Large Pump Station	1 EA.	75,000	75,000
Force Main to Tasley	16,000 L.F.	18	288,000
Service Connections	295 EA.	800	236,000
	SUBTOTAL		**$2,012,000**

RELATED COSTS

Land and Right-of-Way	$ 40,000
Legal Services	16,300
Administration	15,000
Engineering	
Basic	138,800
Inspection	82,400
Other	33,000
Contingency (10%)	201,200
SUBTOTAL	**$ 526,700**
TOTAL	**$2,538,700**

*** This cost estimate includes the cost to serve the community of Graysville (4).**



CENTRAL ACCOMACK SEWER STUDY

TOWN OF ACCOMAC GRAVITY SEWER LAYOUT

LEGEND

- GRAVITY SEWER
- PUMP STATION
- FORCE MAIN

0 1000 2000 4000

DEWBERRY & DAVIS
Architects Engineers Planners Surveyors
9200 Arboretum Pkwy, Suite 130
Richmond, VA 23236

MAP

TABLE 13

Town of Accomac - Vacuum Collection System
Central Accomack Sewer Project
Cost Estimate

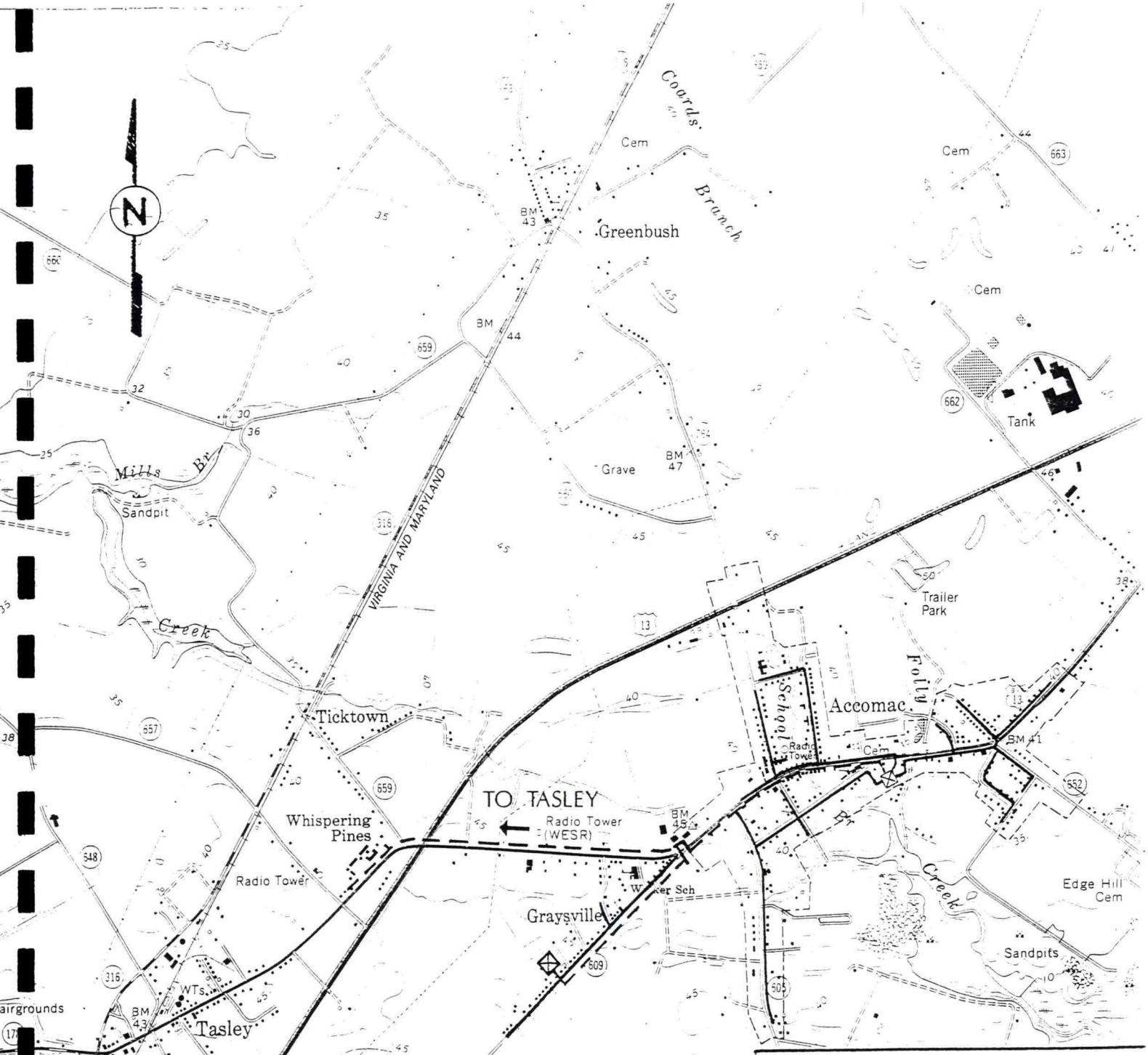
CONSTRUCTION COSTS

ITEM	QUANTITY	UNIT COST	TOTAL
Large Main	14,000 L.F.	$ 20	$280,000
Small Main	7,000 L.F.	17	119,000
Valves on Main	14 EA.	500	7,000
Collection/ Pump Station	2 EA.	150,000	300,000
Force Main to Onley	12,500 L.F.	18	225,000
Valve Pit Packages (1 per 2 connections)	148 EA.	3,000	444,000
	SUBTOTAL		**$1,375,000**

RELATED COSTS

Land and Right-of-Way	$ 30,000
Legal Services	13,200
Administration	12,000
Engineering	
Basic	100,000
Inspection	65,000
Other	26,000
Contingency (10%)	137,500
SUBTOTAL	**$383,700**
TOTAL	**$1,758,700**

*** This cost estimate includes the cost to serve the community of Graysville (4).**



CENTRAL ACCOMACK SEWER STUDY

TOWN OF ACCOMAC VACUUM SEWER LAYOUT

LEGEND

- VACUUM SEWER MAIN
- ○ FLOW EQUALIZATION TANK
- ⊠ VACUUM/PUMP STATION
- FORCE MAIN

0 1000 2000 4000

DEWBERRY & DAVIS
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9200 Arboretum Pkwy, Suite 130
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MAP

TABLE 14

Town of Onley - Gravity Collection System
Central Accomack Sewer Project
Cost Estimate

CONSTRUCTION COSTS

LINE ITEM	QUANTITY	UNIT COST	TOTAL
8" Gravity Sewer	26,000 L.F.	$ 40	$1,040,000
Manholes	105 EA.	1,800	189,000
Small Pump Station	2 EA.	50,000	100,000
Force Main	4,000 L.F.	15	60,000
Large Pump Station	1	75,000	75,000
Force Main To Onancock WWTP	17,500 L.F.	18	315,000
Service Connections	289	800	231,200
	SUBTOTAL		**$2,010,200**

RELATED COSTS

Land and Right-of-Way	$ 40,000
Legal Services	16,300
Administration	15,000
Engineering	
Basic	138,600
Inspection	82,300
Other	45,000
Contingency (10%)	201,000
SUBTOTAL	**$538,200**
TOTAL	**$2,548,400**

TABLE 15

Community of Tasley (1) - Gravity Collection System
Central Accomack Sewer Project
Cost Estimate*

CONSTRUCTION COSTS

LINE ITEM	QUANTITY	UNIT COST	TOTAL
8" Gravity Sewer	11,400 L.F.	$ 40	$456,000
Manholes	43 EA.	1,800	77,400
Pump Station	1 EA.	50,000	50,000
Force Main into Onley Main	6,500 L.F.	15	97,500
Service Connections	90 EA.	800	72,000
	SUBTOTAL		**$752,900**

RELATED COSTS

Land and Right-of-Way	$ 18,000
Legal Services	10,000
Administration	8,000
Engineering	
Basic	59,400
Inspection	42,000
Other	11,000
Contingency (10%)	75,300
SUBTOTAL	**$ 223,700**
TOTAL	**$976,600**

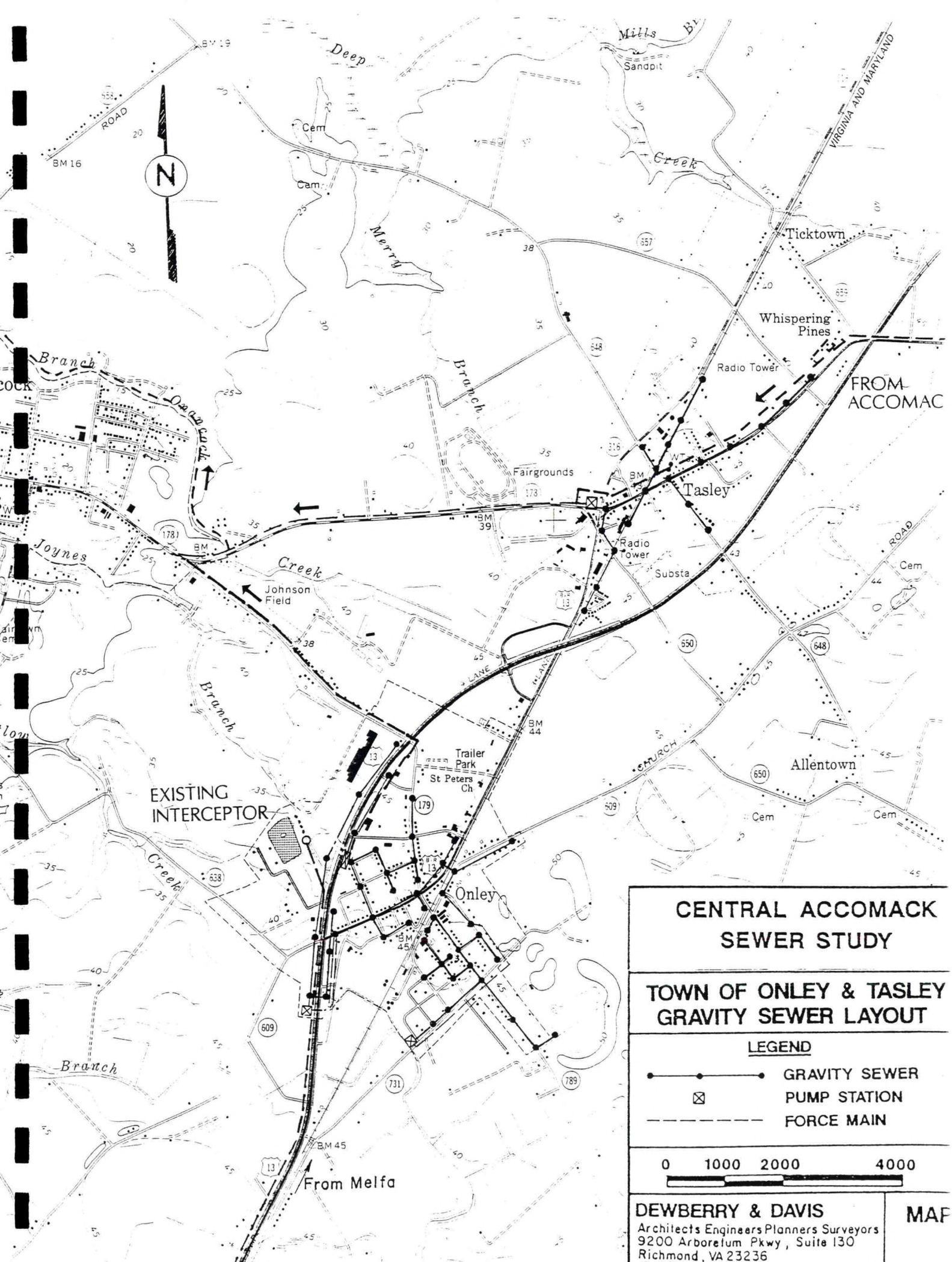

CENTRAL ACCOMACK
SEWER STUDY
TOWN OF ONLEY & TASLEY
GRAVITY SEWER LAYOUT
LEGEND
GRAVITY SEWER
PUMP STATION
FORCE MAIN
0 1000 2000 4000
DEWBERRY & DAVIS
Architects Engineers Planners Surveyors
9200 Arboretum Pkwy, Suite 130
Richmond, VA 23236
MAP
EXISTING
INTERCEPTOR
FROM
ACCOMAC
From Melfa
Onley
Tasley
Ticktown
Whispering
Pines
Allentown
Trailer
Park
St Peters
Ch
Fairgrounds
Johnson
Field
Radio
Tower
Substa
Sandpit
Cem
Creek
Branch
Joynes
Merry
Deep
Mills
VIRGINIA AND MARYLAND
ROAD
CHURCH
LANE
PLANT
BM 16
BM 19
BM 39
BM 44
BM 45

TABLE 16

Town of Onley - Vacuum Collection System
Central Accomack Sewer Project
Cost Estimate

CONSTRUCTION COSTS

LINE ITEM	QUANTITY	UNIT COST	TOTAL
Large Main	14,000 L.F.	$ 20	$280,000
Small Main	10,000 L.F.	17	170,000
Valves on Main	18 EA.	500	9,000
Collection/ Pump Station	1 EA.	150,000	150,000
Force Main to Onancock WWTP	16,500 L.F.	18	297,000
Valve Pit Packages (1 per 2 connections)	145 EA.	3,000	435,000
	SUBTOTAL		**$1,341,000**

RELATED COSTS

Land and Right-of-Way	$ 30,000
Legal Services	12,900
Administration	12,000
Engineering	
Basic	97,800
Inspection	63,800
Other	32,000
Contingency (10%)	134,100
SUBTOTAL	**$382,600**
TOTAL	**$1,723,600**

TABLE 17

Community of Tasley (1) - Vacuum Collection System
Central Accomack Sewer Project
Cost Estimate

CONSTRUCTION COSTS

ITEM	QUANTITY	UNIT COST	TOTAL
Large Main	7,000 L.F.	$ 20	$140,000
Small Main	3,000 L.F.	17	51,000
Valves on Main	5 EA.	500	2,500
Collection/ Pump Station	1 EA.	150,000	150,000
Force Main into Onley Main	7,500 L.F.	15	112,500
Valve Pit Packages (1 per 2 connections)	45 EA.	3,000	135,000
	SUBTOTAL		**$591,000**

RELATED COSTS

Land and Right-of-Way	$ 15,000
Legal Services	8,600
Administration	8,000
Engineering	
Basic	48,700
Inspection	35,000
Other	10,000
Contingency (10%)	59,100
SUBTOTAL	**$184,400**
TOTAL	**$775,400**

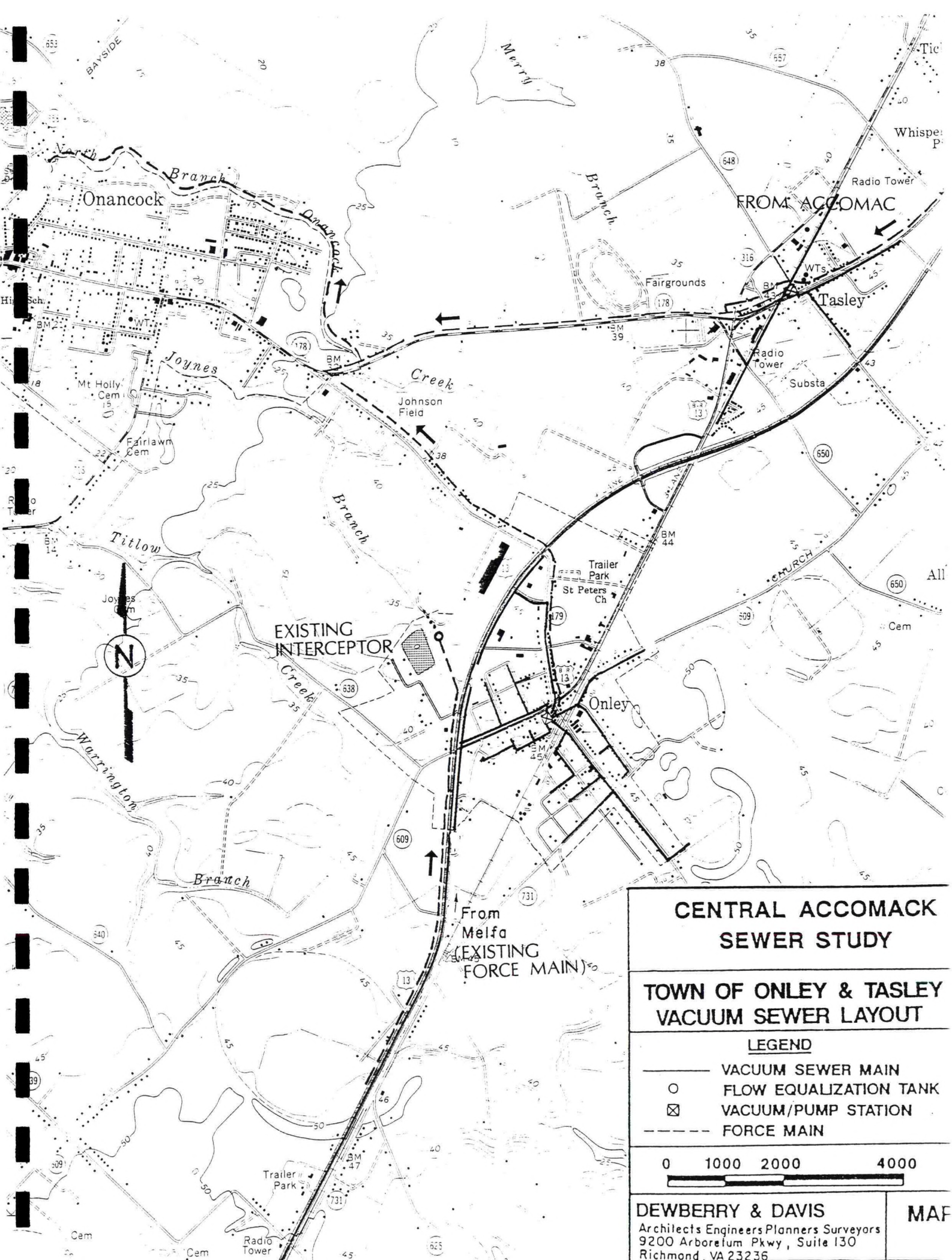

Onancock
North Branch
Onancock Creek
Joynes Creek
Mt Holly Cem
Fairlawn Cem
Johnson Field
Fairgrounds
Radio Tower
FROM ACCOMAC
Tasley
WTs
Substa
Merry Branch
Titlow Branch
Warrington Branch
EXISTING INTERCEPTOR
Trailer Park
St Peters Ch
Onley
CHURCH
From Melfa (EXISTING FORCE MAIN)
Trailer Park
Radio Tower
Cem
N
CENTRAL ACCOMACK SEWER STUDY
TOWN OF ONLEY & TASLEY VACUUM SEWER LAYOUT
LEGEND
VACUUM SEWER MAIN
FLOW EQUALIZATION TANK
VACUUM/PUMP STATION
FORCE MAIN
0 1000 2000 4000
DEWBERRY & DAVIS
Architects Engineers Planners Surveyors
9200 Arboretum Pkwy, Suite 130
Richmond, VA 23236
MAP

TABLE 18

Town of Melfa - Gravity Collection System
Central Accomack Sewer Project
Cost Estimate*

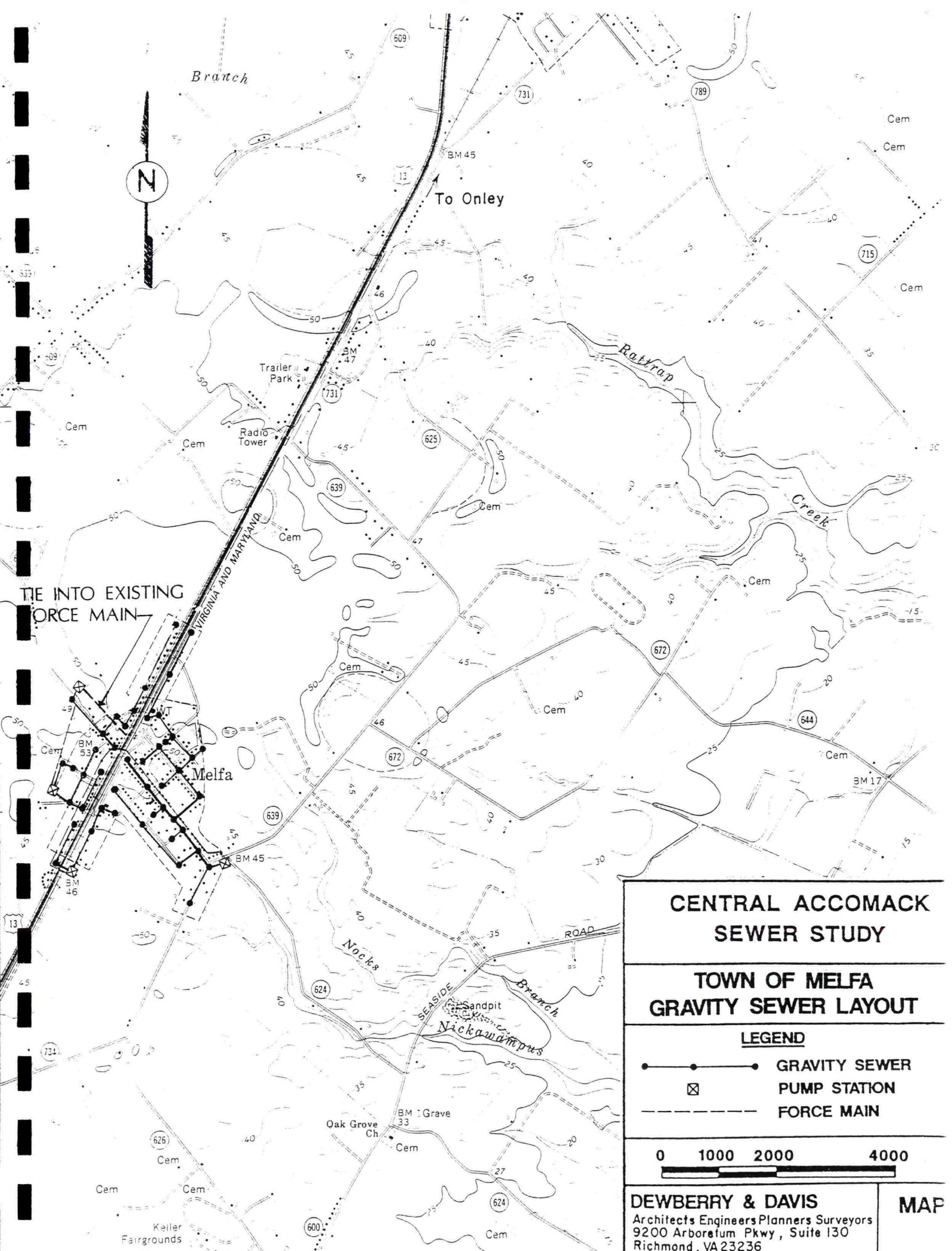
CONSTRUCTION COSTS

LINE ITEM	QUANTITY	UNIT COST	TOTAL
8" Gravity Sewer	20,000 L.F.	$ 40	$800,000
Manholes	80 EA.	1,800	144,000
Small Pump Station	3 EA.	50,000	150,000
Force Main	7000 L.F.	15	105,000
Large Pump Station	1 EA.	75,000	75,000
Force Main into Existing Main	1,000 L.F.	18	18,000
Service Connections	203 EA.	800	162,400
	SUBTOTAL		**$1,454,400**

RELATED COSTS

Land and Right-of-Way	$ 40,000
Legal Services	13,600
Administration	15,000
Engineering	
Basic	105,100
Inspection	67,600
Other	19,000
Contingency (10%)	145,400
SUBTOTAL	**$405,000**
TOTAL	**$1,860,100**

*** This cost estimate assumes that existing IDA force main will be used.**



CENTRAL ACCOMACK SEWER STUDY

TOWN OF MELFA GRAVITY SEWER LAYOUT

LEGEND

- GRAVITY SEWER
- PUMP STATION
- FORCE MAIN

0 1000 2000 4000

DEWBERRY & DAVIS
Architects Engineers Planners Surveyors
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Richmond, VA 23236

MAP

TABLE 19

Town of Melfa - Vacuum Collection System
Central Accomack Sewer Project
Cost Estimate*

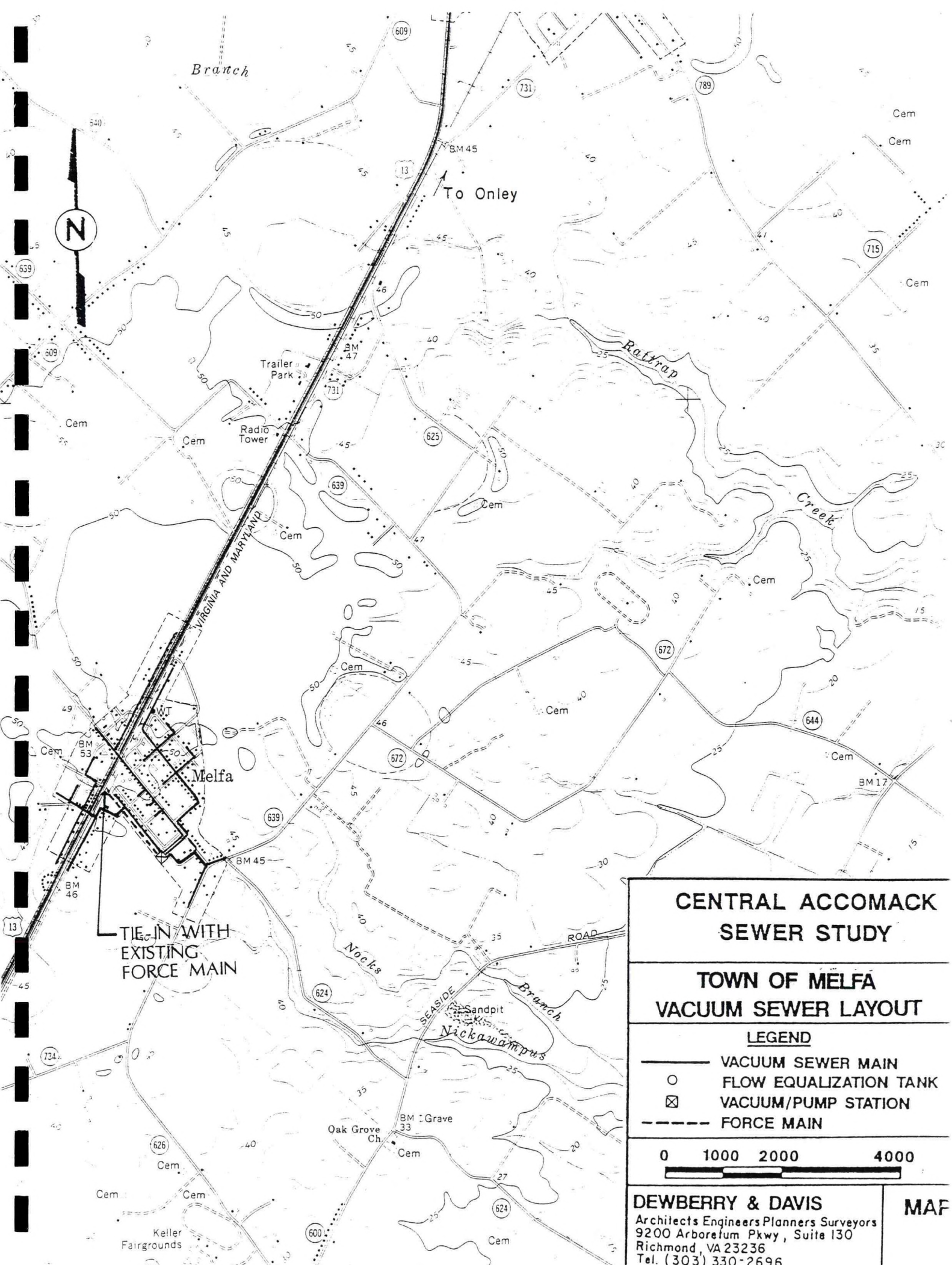
CONSTRUCTION COSTS

LINE ITEM	QUANTITY	UNIT COST	TOTAL
Large Main	10,000 L.F.	$ 20	$200,000
Small Main	12,000 L.F.	17	204,000
Valves on Main	20 EA.	500	10,000
Collection/ Pump Station	1 EA.	150,000	150,000
Force Main into Existing Main	1,500 L.F.	18	27,000
Valve Pit Packages (1 per 2 connections)	102 EA.	3,000	306,000
	SUBTOTAL		**$897,000**

RELATED COSTS

Land and Right-of-Way	$ 30,000
Legal Services	10,900
Administration	12,000
Engineering	
Basic	68,400
Inspection	47,700
Other	16,000
Contingency (10%)	89,700
SUBTOTAL	**$274,700**
TOTAL	**$1,171,700**

*** This cost estimate assumes existing IDA force main will be used.**


Branch
To Onley
BM 45
Trailer Park
BM 47
Rattrap
Creek
Radio Tower
VIRGINIA AND MARYLAND
Cem
WT
BM 53
Melfa
BM 46
TIE-IN WITH EXISTING FORCE MAIN
Nocks
ROAD
SEASIDE
Sandpit
Nickawampus
Branch
Oak Grove Ch
BM Grave 33
Keller Fairgrounds
BM 17
609
731
789
715
639
625
672
644
624
626
600
734
13
N
0 1000 2000 4000
CENTRAL ACCOMACK SEWER STUDY
TOWN OF MELFA
VACUUM SEWER LAYOUT
LEGEND
VACUUM SEWER MAIN
FLOW EQUALIZATION TANK
VACUUM/PUMP STATION
FORCE MAIN
DEWBERRY & DAVIS
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Richmond, VA 23236
Tel. (303) 330-2696
MAP

TABLE 20

Existing Onancock Treatment Facility Upgrade to 600,000 GPD Facility
Central Accomack Sewer Project
Cost Estimate

CONSTRUCTION COSTS

ITEM	COST
Grit Chamber	$ 20,000
New Mechanical Screen	80,000
Influent Pumps	150,000
Rehabilitate/Paint Existing EA Plants	45,000
New EA Plant	610,000
Flow Splitter	35,000
Aeration Blowers	70,000
Demolish Filters and Contact Tanks	15,000
Add Flash/Floc/Sed Units	200,000
Chemical Feed and Storage	130,000
Rehabilitate/Paint Existing Units	20,000
New Gravity Filters	280,000
U.V. Disinfection Expansion	80,000
New Sludge Dewatering Plate and Frame Press	350,000
Yard Piping	160,000
Laboratory	130,000
Electrical	80,000
Emergency Generator	50,000
Site Work	55,000
Instrumentation	50,000
SUBTOTAL	**$2,610,000**

RELATED COSTS

Land and Right-of-Way	$ 12,000
Legal Services	20,000
Administration	25,000
Engineering	
Basic	175,000
Inspection	99,000
Other	75,000
Contingency (10%)	261,000
SUBTOTAL	**$ 667,000**
TOTAL	**$3,277,000**

Report Date 4/15/93

TABLE 21

New Regional Treatment Facility
600,000 GPD Oxidation Ditch
Central Accomack Sewer Project
Cost Estimate

CONSTRUCTION COSTS

ITEM	COST
Grit Chamber	$ 90,000
Mechanical Screen	55,000
Influent Pump Station	225,000
Flow Splitter	20,000
Multi-Channel Oxidation Ditch	700,000
Secondary Clarifier	150,000
Sludge Return	130,000
Chemical Coagulation, Settling	300,000
Chemical Storage and Feed	130,000
Gravity Filters	280,000
U.V. Disinfection	150,000
Aerobic Digester	210,000
Sludge Dewatering, Plate and Frame Press	350,000
Yard Piping	160,000
Laboratory	130,000
Electrical	100,000
Generator	50,000
Site Work	80,000
Instrumentation	50,000
SUBTOTAL	**$3,360,000**

RELATED COSTS

Land and Right-of-Way	$ 40,000
Legal Services	20,000
Administration	25,000
Engineering	
Basic	218,000
Inspection	118,000
Other	80,000
Contingency (10%)	336,000
SUBTOTAL	**$ 837,000**
TOTAL	**$4,197,000**

TABLE 22

New Treatment Facility - Onancock Independent
350,000 GPD Oxidation Ditch
Central Accomack Sewer Project
Cost Estimate

CONSTRUCTION COSTS

ITEM	COST
Grit Chamber	$ 75,000
Mechanical Screen	45,000
Influent Pump Station	135,000
Flow Splitter	15,000
Multi-Channel Oxidation Ditch	439,000
Secondary Clarifier	90,000
Sludge Return	108,000
Chemical Coagulation, Settling	195,000
Chemical Storage and Feed	102,000
Gravity Filters	162,000
U.V. Disinfection	75,000
Aerobic Digester	175,000
Sludge Dewatering, Plate and Frame Press	280,000
Yard Piping	112,000
Laboratory	130,000
Electrical	100,000
Generator	50,000
Site Work	75,000
Instrumentation	20,000
SUBTOTAL	**$2,383,000**

RELATED COSTS

Land and Right-of-Way	$ 40,000
Legal Services	17,000
Administration	25,000
Engineering	
Basic	162,000
Inspection	93,000
Other	45,000
Contingency (10%)	238,000
SUBTOTAL	**$ 620,000**
TOTAL	**$3,003,000**

Report Date 4/15/93

TABLE 23

Community Collection Systems
Central Accomack Sewer Project
Cost Estimates

COMMUNITY NAME OR DESCRIPTION	TOTAL PROJECT COSTS
1. Tasley*	-
2. Deep Creek, at Rt. 657	$875,500
3. Rt. 658 near Rt. 661	$902,400
4. Graysville, Rt. 609*	-
5. Dogwood and Redwood Rd. (Rt. 639 and 609)	$535,700
6. Savageville, Rt. 718	$561,800
7. South Chesconessex, Rt. 655	$651,300
8. Daugherty, Rt. 648 and Rt. 605	$570,000
9. Rt. 658 near 735	$450,700
10. Rt. 609 and Rt. 648	$487,800
11. Locustville	$499,000
12. Chesconessex, Rt. 656	$591,900
13. Texaco Town Rd, Rt. 731, 639 near 625	$463,500
14. Schooner Bay, Rt. 802	$792,300
15. Mt. Nebo Road Rt. 634 at Rt. 637	$624,500

*** These communities have been included in the initial service area.**

TABLE 24

Estimated Annual Operation and Maintenance Costs
Central Accomack Sewer Project

		ANNUAL O&M COST	PRESENT WORTH O&M COST
1.	COLLECTION SYSTEMS		
	A. Gravity Collection		
	Accomac	$10,000	$171,600
	Onley	14,000	240,200
	Melfa	16,000	274,500
	Tasley	10,000	171,600
	TOTAL	**$50,000**	**$857,900**
	B. Vacuum Collection		
	Accomac	$14,000	$240,200
	Onley	8,000	137,300
	Melfa	8,000	137,300
	Tasley	8,000	137,300
	TOTAL	**$37,000**	**$652,100**
	C. Existing Onancock Collection System		
	TOTAL	**$40,000**	**$686,400**
2.	TREATMENT SYSTEMS		
	Upgraded Onancock Facility	$150,000	$2,573,900
	New Regional Facility	140,000	2,402,300
	350,000 GPD New Facility	117,000	2,007,600

VI. ENVIRONMENTAL IMPACT OF ALTERNATIVES

Environmental Evaluation and Screening: The preceding sections of this report discuss in detail the facilities necessary to provide sewer service to the Central Accomack County area. This section will discuss the environmental impact of the alternatives. The alternatives will be compared to the "No Action" alternative.

In order to perform an environmental scan, the alternatives will be screened according to an environmental impact matrix. With the "No Action" alternative having zero (0) impact, the impact of the proposed facilities will be rated according to the relative magnitude of adverse and beneficial environmental impact produced upon selected environmental indicators on a scale of -10 to +10. Beneficial environmental impacts relative to the "No Action" alternative will assume positive (+) rating values while adverse impacts will assume negative (-) rating values. Environmental impacts will be evaluated for both the construction and operational phases of the planned improvements.

In addition to the magnitude of each impact, its importance will also be rated. The product of these two ratings, impact and magnitude, will be computed in order to yield an environmental impact score. Thus, the net environmental impact of the alternatives can be assessed by summing the environmental scores. If the total score of the planned action is negative (-), the "No Action" alternative will be selected.

In performing the environmental scan, the following Environmental Indicators are listed with their importance rating shown in parenthesis.

- Ground Water (10)
- Surface Water (10)
- Wildlife and Marine Life (8)
- Marshlands and Wetlands (8)
- Displacement of Homes, Business/Services (5)
- Archaeological/Historic Significance (4)
- Recreational and Open Spaces (4)
- Aesthetics (4)
- Solid Waste Management (3)
- Odor Air Quality (3)
- Noise (2)
- Cultural Patterns (5)
- Traffic (2)
- Irretrievable Resources (4)
- Socio-Economic Changes (2)
- Flood Plain Impacts (4)
- Wild and Scenic Rivers (4)

Ground Water: The project will reduce the use of septic tank and drainfield systems in the planning area, thereby reducing the potential contamination of the aquifers from these systems. In this regard, adoption of the plan is far superior to the "No Action" alternative regarding beneficial environmental impacts.

No adverse environmental impacts are expected as a result of the construction and operation of the proposed facilities.

Surface Water: The project will eliminate discharges of untreated or "raw sewage" to waters in the planning area. Implementation of the selected plan will result in an improvement with respect to BOD, dissolved oxygen and coliform content in the Chesapeake Bay, Atlantic Ocean and their tributaries. In this regard, adoption of the plan is far superior to the "No Action" alternative regarding beneficial environmental impacts. No adverse environmental impacts are expected as a result of the operation of the proposed facilities if proper operation and maintenance procedures are followed.

In construction of the proposed facilities, existing land surfaces will have to be disturbed, creating runoff; some of which may eventually enter nearby surface streams. No runoff will be produced with the "No Action" alternative because no construction will take place. Construction could result in some erosion damage and sedimentation. An Erosion and Sediment Control Plan will be required for the project. The plan will be prepared in accordance with the Virginia Erosion and Sediment Control Regulations, and local ordinances. The adverse environmental impact caused by runoff during the construction phase can be eliminated if precautions are taken, such as the use of siltation catch basins or surface drainage ditches and other methods. Subsequent restoration of construction sites after the initial construction phase will prevent erosion damage from runoff during the operational phase. In addition, construction of the system will require that some sewers be located in creeks. The use of coffer dams during the construction phase will be necessary to facilitate construction.

These adverse effects are transitory in nature, however, and are present only during the construction phase. When viewed in perspective with the severe degradation which would result from the "No Action" alternative, the transitory environmental costs incurred in construction the selected alternative are justified.

Wildlife and Marine Life: Implementation of the plan will have virtually no impact on wildlife. Marine life will be benefited as a result of a reduction in pollution. Construction will have minimal impact to wildlife and marine life; erosion and sediment control measures will further minimize impact.

Marshlands and Wetlands: No wetlands have yet been identified within the project area; however, any wetlands which are disturbed will be restored immediately after construction, therefore, the selected alternative will have no operational impact. Proper permitting procedures will be followed.

Displacement of Homes, Businesses and Services: There will be no operational phase displacement of homes, businesses or services. During construction, disruption of service may be experienced as the result of damage to adjacent facilities; however, coordination with utility personnel should minimize impact. The existing utilities will be mapped to minimize this effect.

Archeological/Historic Significance: There are no points of archeological/ historical significance known to exist that would be affected by the selected alternative. State agencies will be contacted and any areas noted or found will be handled in an appropriate manner.

Recreation and Open Space: Radical changes in existing land use patterns are not anticipated in the future due to the topographic limitations that exist which will offset land use development. Recreation activities are not anticipated to change as the result of this project. Net usable open space will not be reduced by implementation of the selected alternative.

Aesthetics: Beneficial aesthetic impacts result from the implementation of the selected alternative. Improvement of surface water quality and reduction of odors will be accomplished. The beneficial aspects of the selected alternative will outweigh the short run aesthetic costs of loss of vegetation during the construction phase.

Solid Waste Management: The proposed plan will not have an adverse impact on the existing landfill system. No significant quantity of construction debris will be generated requiring landfill disposal. Depending upon the final treatment process selected there may be some material (sludge or biosolids) from the operation of the treatment facility that will be deposited in the landfill or possibly used as landfill cover.

Odor and Air Quality: Reduction of odors caused by the discharge of improperly treated sewage into receiving streams would be realized with the implementation of the selected plan. No significant impact is expected in air quality or odor during the construction phase if proper construction methods are followed.

Noise: Noise is anticipated during the construction stage of the plan since heavy equipment will be employed. Noise levels may reach 90-100 decibels above the hearing threshold at the construction sites. Baseline noise in the area prior to construction of the facility are estimated to be 40-50 decibels. Noise levels generated are transitory in nature during the construction phase and will not increase from current levels during the operational phase of the project.

Cultural Patterns: Implementation of the plan will have little or no effect upon the prevailing cultural patterns within the planning area. Changes in employment, income, and life style are not anticipated to be significant in the future. The implementation of the plan will cause secondary impacts on some prime farmland by the projections of development in the project area. Minor disruption are anticipated during the construction phase.

Traffic: Construction of the proposed facilities will not cause radical changes in traffic patterns in the planning area. The impact of constructing the selected alternative will be increased traffic flow and the disruption of normal traffic patterns as a result of construction activity. Increased traffic flow will exist throughout construction activities but is not expected to exceed 200 vehicles per/day. Existing traffic routes can accommodate this increase with little adverse impact. The disruption of traffic patterns will occur at several locations along the project route as a result of construction activities. Disruptions will be for short periods of time and only a few individuals will be affected. Existing routes to the construction site can accommodate construction personnel increases without adverse impact. Construction traffic will consist of primarily trucks and excavation equipment and could accelerate the deterioration of the existing pavement structure and decrease it's useful life. Pavement restoration will be accomplished as part of the project.

When viewed in perspective with the "No Action" alternative, these adverse impacts are transitory nature and environmental costs incurred in construction the project are justified. Long range changes in traffic during operation are not expected.

Irretrievable Resources: Gasoline, fuel and oil will be used during construction causing negative impact, however, significant adverse impacts to irretrievable resources should not result from the construction of the project.

Socio-Economic Changes: The "No-Action" alternative would result in reduced or no wastewater treatment which could create negative socio-economic changes. The positive changes created by the proposed facilities include an increase quality of residential services. The changes also include the possibility of participation of state and local agencies that could provide indoor plumbing to those households that lack indoor facilities and are served by the proposed project. The concept and goal of a regional project, is to provide service in the most cost effective manner. The impact of the proposed project on monthly user charges can be found elsewhere in this report.

Floodplain: Portions of the project area are located within the floodplain. The facilities located in the floodplain will be protected through the use of waterproof manholes, and/or buried facilities. The project will have no short or long term impact on the floodplain.

Wild and Scenic River: No portion of the projected is known to be located in or near designated "Wild and Scenic Rivers." The implementation of the proposed alternative will result in improved water quality in the planning area. No adverse environmental impacts are expected through proper operation of the facilities. The adverse environmental impacts associated with project construction can be minimized or eliminated if precautions are taken.

Final Scoring: Effects experienced during the construction phase are relatively transitory in nature when compared to the 40-year operational period. Construction effects should not be evident for more than one year. The short-run and long-run effects of the selected alternative can be combined to form a final environmental outcome by multiplying each impact by it duration in years. Thus, impacts resulting from the construction phase are multiplied by one (1) and those resulting from the forty-year operational phase are multiplied by 40. Adding these two products together give the final environmental outcome of the selected alternative with respect to the "No Action" alternative.

For example, for the plan implementation:

$$\text{Environmental Outcome} = (1) \times (-69) + (40) \times (+136) = 5{,}371$$

Therefore, the more environmentally beneficial action is to implement this plan over the "No Action" alternative.

Tables 25 and 26 present the environmental scores for the alternatives under consideration.

Public Comment

Public hearings and discussions for the purpose of discussing the project, the alternatives considered, their environmental impact, and the project's cost and associated user charges will be held in the future. A transcript of this public hearing will be included in the Appendix.

TABLE 25

Environmental Impact of the Project Implementation
Central Accomack Sewer System

Accomack County, Virginia

Environmental Indicator	Importance	Environmental Impact Rating CONSTRUCTION: Implement Plan	CONSTRUCTION: Take No Action	OPERATION: Implement Plan	OPERATION: Take No Action
1. Groundwater	10	0	0	+5	0
2. Recreational and Open Space	4	0	0	0	0
3. Surface Water	10	-3	0	+4	0
4. Wildlife and Marine Life	8	0	0	+2	0
5. Marshlands and Wetlands	8	0	0	0	0
6. Displacement of Homes, Businesses and Services	5	-2	0	0	0
7. Socio-Economic Changes	2	0	0	+2	0
8. Traffic	2	-3	0	0	0
9. Aesthetics	4	-1	0	+2	0
10. Odor and Air Quality	3	0	0	+3	0
11. Noise	2	-2	0	0	0
12. Irretrievable Resources	4	-1	0	0	0
13. Archaeological/Historical	4	0	0	0	0
14. Cultural Pattern	5	0	0	0	0
15. Floodplain Impact	4	0	0	0	0
16. Wild and Senic River	4	-2	0	+3	0
17. Solid Waste Management	3	-1	0	-1	-
NET TOTAL SCORE *		-69	0	+136	0

Net Total Score is determined by multiplying each impact rating importance.

TABLE 26

Summary
Environmental Impact
Central Accomack Sewer System

Accomack County, Virginia

Alternative	Environmental Impact During Construction	Duration (Years)	Environmental Impact During Operation	Duration (Years)	Environmental Impact* Score
1. "No Action"	0		0		0
2. Selected Alternatives	-69	1	+136	40	+5,371

* With respect to the "Take No Action" alternative.

VII. Financing Options

The financing of wastewater (and water) projects can come from numerous sources. This section addresses the major sources presently used or that could be used to produce the funds for necessary projects. Funding sources are classified into three categories and include Federal grants and loans, State grant and loan supplements and locally produced revenues.

Federal construction grants are a decreasing source of revenue for financing water and wastewater projects and will be phased out in the near future. Loan and grant programs at the Federal and State level and locally generated revenues are most feasible for the County and are discussed below.

A. Federal Grants and Loans

1. Farmers Home Administration (FmHA)

   Programs for water and wastewater loans or grants are available to finance water and wastewater projects. The loan programs are 40 year revenue or general obligation bonds purchased by FmHA and carry three different interest rates. The interest rates are: a) 5 percent, b) a market rate which tracks the municipal bond index and c) an intermediate rate which is the midpoint between 5 percent and market rate. The median family income of the project area and public health concerns will determine the loan interest rate.

   Accomack County is eligible for 75% grant/25% - 5% interest loan from FmHA.

2. Economic Development Administration (EDA)

   EDA provides a 50/50 matching grant up to a maximum $1,000,000 primarily to promote economic activity in areas of high unemployment.

   In order to be eligible for the grants the County must first develop a new "Overall Economic Development Plan" (OEDP) unless the most recent OEDP is acceptable to the Economic Development Administration. This plan is usually developed through the regional planning district and identifies potential projects such as water and sewer for industrial parks.

B. State Resources

1. Virginia Department of Housing and Community Development Block Grants (CDBG)

This program is the old "HUD Block Grant" which is actually Federal funds administered by the State. Competitive grants of up to $700,000 for individual projects and up to $2,100,000 for "regional" type projects are available through the Virginia Department of Housing and Community Development. In order to be competitive, however, most of the benefits should be targeted to low and moderate income areas. Having funds committed from other Federal agencies also increases the chances of the applicant to receive funds.

2. Virginia Water Control Board Revolving Loan Fund

The Environmental Protection Agency (EPA) grant program that funded so many wastewater projects has now been replaced with the revolving loan program. The funds come from EPA and are supplemented by State appropriations to finance wastewater projects. The Virginia Water Control Board administers the program through the Virginia Resources Authority (VRA) and determines which localities receive loans and sets the interest rate for each loan.

The interest rate is based upon the Median Household Income of the political subdivision and can range from 0 percent to just below market rates, and the payback period is 20 years.

This process is similar to the EPA process in that the project being considered must first appear on a priority list. An application is then submitted for action by the VWCB.

Areas that are designated "Health Hazards" by the Virginia Department of Health receive preferential treatment in setting of interest rates. Because of the Federal involvement the application process is lengthy and can take up to one year. Also the applicant must comply with Federal requirements such as wage determinations, environmental statements and infiltration/inflow studies.

3. Virginia Water Project

Virginia Water Project is a non-profit corporation that provides training, technical assistance and seed funds to rural communities and to individuals to solve water and sewer problems. Attractive loans and grants are available primarily for individuals in low income areas. A typical use of this program would be to assist low income residents to construct on-site plumbing and pay the connection fees thus enabling them to use the water or sewerage system.

VIII. PROJECT IMPLEMENTATION/ADMINISTRATION

County governments have been provided powers and duties determined by the state constitution and the General Assembly. As a result of the General Assembly recognizing counties' increasing needs to provide urban type services, counties are vested with several means of delivering water and sewer services to their citizens.

A. Sanitary Districts

Sanitary Districts are special taxing districts that usually encompass a densely populated urban area of a county that is otherwise typically rural in nature. These districts are created after petition of the circuit court by the residents of a contiguous area. (The Board of supervisors cannot petition the court). If the court creates the district then the affairs of the district are managed by the Board of Supervisors, usually through a citizen advisory committee.

Although the sanitary district is managed by the county its financing is completely separate. The county may issue revenue bonds that are supported solely by revenues generated in the district. A special tax levy on property located with the district may be established to supplement the revenue pledged to the bond issue. General obligation bonds cannot be issued nor can revenues from other portions of the County be used to retire the revenue bonds.

The advantages of a sanitary district lie in the broad powers, financing flexibility (bonds and taxes), and the ability to provide a specific service that is not feasible countywide without encumbering the entire county. The disadvantages of a sanitary district are related to the restricted revenue base available to support the capital improvements.

B. Water and Sewer Authorities

A second method available to county governments for furnishing water and sewer services is the Virginia Water and Sewer Authorities Act of 1950.

The Authority consists of members appointed by the Board of Supervisors and is, in effect, a non-profit organization. It is through the appointment of these members that the Board of Supervisors maintains its control over the Authority's activities.

The chief responsibility of its members is to the owners of the bonds and financial institutions that lend it money from time to time for the purpose of constructing the desired services. The primary advantage of an Authority is that it is empowered with the right to adjust the various rates and service charges as required to meet its obligations to the bond holders. No referendum is required

of the County for such adjustments or for the creation of such an Authority. No referendum is required to issue revenue bonds to finance capital projects. Typically all the revenues from both existing authority customers and future customers are pledged to a new project being financed by a revenue bond. Authority issued debt does not impact the credit of the county. The major drawback to an Authority is its lack of taxing power therefore restricting its long term financing options to revenue bonds. Generally revenue bonds carry a slightly higher interest rate than similar bonds backed by the full faith and credit of the county.

The Virginia code also provides protection to Authorities and their bond holders that operate in counties vulnerable to annexation. The law allows an authority that has outstanding debt instruments to continue operating within its jurisdictional area even though a portion of that area may have been annexed by a city or town.

C. Authority for More Than One Political Subdivision

The Virginia Code allows more than one political subdivision to concurrently create an Authority to carry forth any or all of the services provided for in the "Virginia Water and Sewer Authorities Act". Such an authority has all the powers, rights, duties and responsibilities of a single political subdivision authority. The political subdivision permitted to create such a multi-municipal authority are counties, cities, incorporated towns and any institution or commission of the Commonwealth of Virginia.

D. County Utility Department

Any county may create a utility department. A county may choose to own the public water and wastewater facilities within its limits rather than creating a water and sewer authority for that purpose. In cases where a county owns such utilities, commonly a utility department manages and operates the utilities. In the case of county ownership and utility department management of utilities, unless the county takes special action, it has only the general power of counties in Virginia to incur debt, namely the general obligation bond issued after a referendum. The county does, however, have available to it the chartered county and "county treated as a city for debt purposes" options described below.

A utility department in a county having the county administrator form of government would be under the direct control and supervision of the Board of Supervisors. In matters of annexation a utility department does not provide the same protection of the County utilities as does an Authority.

E. Chartered County

The charter option provides any county with the potential to receive additional powers beyond the general powers of counties to incur debt, to provide utility services, and to perform many other governmental functions. The charter is granted by the General Assembly upon enactment of a bill incorporating the entire charter after review of all of the proposed additional powers. The charter is introduced to the General Assembly only after publication of a summary of the charter and a vote in favor of the charter request by a majority of the county's voters. Any county which has been granted a charter is considered to be a "municipal corporation" so that if its approved charter so states, the county has conferred upon it all of the powers contained in Chapter 18, Powers of Cities and Towns, (Section 15.1-837 through Section 15.1-907) of the Code of Virginia.

In practical terms, a county's charter could include provisions for any of the other options contained in this "implementation" section, namely sanitary districts, a single or multi-municipal water and sewer authority, or a utility department. Charter provisions can also specify bond-issuing procedures different from those contained in the general Public Finance Act of the Code of Virginia. For instance, a charter could specify that the county would have the ability to issue both general obligation bonds and revenue bonds without a referendum preceding each bond issuance.

F. County Treated as City for Debt Purposes

County Boards of Supervisors can receive power to issue general obligation bonds without a referendum (Section 15.1-185.1, Code of Virginia), regardless of whether the county is chartered. A board receives the power upon a one-time affirmative vote of the county's voters for the county to be treated as a city for the purposes of issuing its bonds.

A project, no matter how cost effective and environmentally sound, cannot be successful unless it can be easily implemented. This project provides several options for successful implementation. These options are:

1. County of Accomack as the "lead" agency.
2. Town of Onancock as the "lead" agency.
3. Formation of regional authority.

    1. The County could be the lead agency with other jurisdictions being customers of the County. In this case, the County would own the plant and the interceptor, with each town owning its' own collection system. The County would operate the facilities, bill the Towns for service and be responsible for treatment efficiency. The advantage

of this implementation option would be to provide operational staff and resources from one location and thereby realize savings associated with this economy of scale. Disadvantages include the County's lack of existing experienced staff, the absence of an established business (billing/collection) organization and the difficulty of arriving at an equitable method of the transfer of ownership of the expanded plant from Onancock to the County.

Secondly, the Town of Accomac or other presently unsewered incorporated area could serve as the lead agency. This option would have basically the same organizational advantages and disadvantages as previously mentioned.

2. The Town of Onancock could take the lead with other jurisdictions owning their respective collection systems. Onancock would assume all operational responsibility. Flows from other jurisdiction would be metered as they entered the system. Onancock would bill other users and manage the financial matters of the sewerage system. Advantages of this arrangement include the fact that Onancock is already established in the "sewer business," they presently have trained operational staff on board and have the necessary billing/collection mechanism in operation. This option would also eliminate the difficulty of dealing with the "equity" issue since Onancock's plant and line ownership would remain with them. Disadvantages arise in difficulties in operation across political jurisdiction boundaries. It may also be possible that some funding disadvantages exist with this option.

3. The plan could be implemented utilizing the formation of an "authority" whose sole purpose and mission is to provide sewer service to the residents of the County. In this instance, the Authority would be responsible for wastewater treatment with the Towns owning their respective collection systems. The Authority would provide the operation, management and billing/collection services needed. The Towns flow would be metered as it entered the system. Advantages associated with this alternative would include "equal" representation from member localities on the authority board allowing a "regional" method of establishing rules and regulations. It would also be relatively easy to establish, though user rates and intermunicipal agreements, methods to provide equity to the Town of Onancock for their existing facilities. It is possible, because of "regional" incentives, that this method of implementation may also have some funding advantages. Disadvantages again would center primarily upon the lack of existing staff and established procedures for sewer system operation.

Since a majority of the service area does not have public water, consideration must be given to the basis for the establishment for the "User Charge System." Two (2) possible methods that should be considered are: (1) the installation of water meters on individual well systems and (2) a "flat-rate" structure based upon one or more variables. These variables include the number of bathroom facilities or the number of employees, number of customers, or the number of facilities in commercial/business units. Further analysis of and establishment of a user charge system is beyond the scope of this study and will depend upon requirements of the project funding agencies.

IX. CONCLUSIONS AND RECOMMENDATIONS

The preceding sections of this report have identified and evaluated alternatives for a cost-effective, environmentally sound, and implementable wastewater collection and treatment system for the Central Accomack County Area. The following will discuss the recommendations for achieving this goal:

A. Facilities

It is recommended that a single "regional" system be developed to serve the area. The recommended facilities consist of constructing vacuum sewerage collection systems to serve the Towns of Accomac, Melfa, and Onley, and the Graysville and Tasley areas of Accomack County and that all wastewater generated in the area be conveyed to the existing Town of Onancock Sewage Treatment Plant (STP) for treatment. The Onancock STP will be expanded to a capacity of 0.600 MGD with an effluent discharge to Onancock Creek.

The Town of Onancock sewer collection system has an infiltration/inflow (I/I) problem as evidenced by a comparison of plant flow records, water production records and rainfall occurrences. The problem appears to be inflow related because plant flows rise soon after a rain begins and subsides soon after the rain ceases. A detailed analysis of the Onancock sewer collection system is beyond the scope of this Study. However, it should be considered as the "regional" project moves forward.

It is in the best interest of the regional project for the Town of Onancock to complete a detailed and comprehensive infiltration/inflow identification and reduction study, to make a more accurate determination of the location and magnitude of the I/I sources. This information can be used to evaluate the costs for repairs to remove the I/I flow, verses the costs to treat the I/I flow. The reduction in I/I flow will also make available additional capacity in the treatment plant for future development. For preliminary budgeting purposes an amount of $500,000 is included in the regional project budgets Project Cost Analysis (Table 27) for completion of the I/I study and repairs.

In the event the Town of Onancock decides not to participate in the regional system, then it is recommended that the County and the Towns of Accomac, Onley and Melfa construct a vacuum sewerage collection system and a new 0.350 MGD treatment plant, near the Onancock facility, with a separate discharge to Onancock Creek.

The Onancock Sewage Treatment Plant is approaching 20 years old and has not undergone any upgrade or improvements since it was constructed. Therefore, for comparison purposes, a "conservative" budget estimate $300,000 for repairs to the

plant has been included in the Project Cost Analysis to show what impacts these improvements to the facility could have on the average user cost should the Town decide to remain independent from the County and other Towns. The Infiltration/Inflow Study and repair budget estimate is also included in the analysis.

B. Implementation

It is clear from the study that the most cost effective method of providing waste treatment for the study area is by utilizing a regional approach. The advantage of this approach will undoubtably increase over the planning period. In order for this approach to function, the implementation of the plan is of utmost importance. It is critical that the adopted plan receive a "buy-in" from all participating localities. The details of this plan therefore must be established through "give and take" negotiations and discussions in order that an "everybody wins" situation may occur.

It is the opinion of the Engineer that the option which provides the largest potential for success is the formation of a regional authority to finance, construction and operate the collection system in the Towns fo Accomack, Onley, Melfa, and Accomack County. The Authority would then deliver the wastewater to the Town of Onancock for treatment. The Town of Onancock would be responsible for financing, constructing and operating their collection system and the "regional" treatment facility. Since this method would "cut-across" jurisdictional boundaries it provides more freedom for innovative thinking which normally leads to successful resolution of difficulties. It is recommended therefore, that this implementation method be chosen for first review. Flexibility must be kept in mind as the method for implementation is certainly less important than the fact that the regional approach is the best short term and long term solution.

Formation of the Authority: This Authority would be composed of representatives from each of the member localities. We would recommend that two members of each of the member localities compose the Authority, i.e., two members each from the Town of Accomac, the Town of Onley, the Town of Melfa, and Accomack County. This would create an Authority of eight (8) members. It is also recommended that an ex-officio (non-voting) position be created for the Executive Director of the area's Planning District Commission (PDC). The Executive Director of the PDC or his designee would be able to serve in this capacity as an advisor to the group and would also be available to bring to the forefront any regional concerns which would need to be considered.

The membership of the Authority would be appointed by the various member localities at their discretion. Normally a locality will appoint one member from its governing body and a second "at-large" citizen member which would hopefully

allow a good cross section of the service area to be represented on this governing board. The Authority would elect its own chairman, vice-chairman, secretary/treasurer, and would be charged with recruiting and hiring an executive director who would be responsible for the day-to-day operation of the Authority.

The responsibilities of the Authority would then be to develop the policy and procedures which will be followed by the Authority; to set user rates and fee schedules; to provide policy directives and supervision for the Executive Director; and to carry out any other duties established in the by-laws and organizational documents; and to do so keeping in mind the best interests of the total area to be served by the Authority.

Enabling Legislation: The proposed member localities should consult their representative legal councils concerning enabling legislation to allow the formation of the Authority, however, in general this guidance is given in Virginia Water & Sewer Authorities Act of 1950. It is proposed that the member localities, through their existing governing bodies, work to establish the methods and the legislation necessary to form the Authority and that this formation be done in as much of a simultaneous manner as is possible. The member localities would, through the development of by-laws, establish the terms of service of the authority members, any compensation which they were given, and the "charge" of the Authority (their duty and mission statement). It would be the responsibility of the governing bodies to make sure that the members which they appoint to the Authority understand the by-laws and the mission statement. Any changes in the by-laws or the legislation establishing the Authority, of course, would need to be approved by the member localities in whatever manner prescribed by law.

Allocation and System Ownership: Although this item is very much subject to change with the negotiations between the various member localities, we would recommend as a starting point that the allocation in the treatment plant be established on a pro-rata basis in accordance with existing and projected flows from each of the member localities. Obviously, Onancock has the highest existing flow and may indeed have the largest need for projected future flows. If this is the case, then Onancock would have an allocation larger than any of the other localities. Once these allocations are established, the charges associated with the operation and maintenance of the treatment facility can then become a matter of mathematics.

The ownership of the various collection and transport systems is also a matter for discussion. For example, each locality could own and operate their own collection system, or the Authority could own and operate all collection systems. It is the opinion of the Engineer that the latter is the preferred case since the Towns of Accomac, Melfa and Onley and Accomack County currently do not have staffs experienced in operation and maintenance, and the provision of additional staffs

would seem to be an unnecessary duplication of effort. It may be well, however, to postpone a final decision on this matter as long as possible in order to determine the ultimate impacts on funding for the project which ownership of parts of the system might have.

Funding the Authority: It is the Engineer's opinion that the Authority's operation will need to be solely funded by rates generated from the operation of the system under the Authority's jurisdiction. It will be necessary, however, during start-up for the Authority to have "seed money" for some items. This money will be needed for legal fees associated with the Authority's establishment and money for legal council to represent the Authority. Money will also be necessary to pay the Executive Director until revenue is generated from the Authority. Clerical staff will not be needed, in our opinion, until later in the process and, therefore, money for this need not be budgeted up front.

When the funding packages for the project is formulated, initial operating capital should be budgeted to keep the Authority in good financial condition until revenue begins to be obtained from various users of the system. Assistance from the administrative and management staffs of the various member localities will be needed in formulating a budget for these expenses and to discuss the physical location of the Authority's offices.

C. Financing/Funding

Based upon our current knowledge of the area, the available sources of funding, and the requirements of the funding agencies, the following project cost analysis is presented for the projects discussed above. Subsequent meetings and negotiations with the local governing bodies, the funding agencies, the Accomack - Northampton Planning District Commission, and further research may result in changes to the analysis.

TABLE 27

Recommended Project
Project Cost Analysis
Central Accomack Sewer Project

CONSTRUCTION COSTS	Regional[1]	Separate[2]	Onancock[3]
Accomac Collection System	$1,375,000	$1,375,000	-
Onley Collection System	1,341,000	1,341,000	-
Melfa Collection System	897,000	897,000	-
Tasley Collection System	591,000	591,000	-
Treatment Facility	2,610,000	2,383,000	$300,000
Onancock I/I Work Collection System	500,000	-0-	500,000
SUBTOTAL	**$7,314,000**	**$6,587,000**	**$ 800,000**
RELATED COSTS			
Land and Right-of-Way	$ 40,000	$ 40,000	$ 5,000
Legal Services	30,000	28,000	10,000
Administration	40,000	40,000	5,000
Bond Counsel	30,000	20,000	5,000
Interest (Interim Financing)	190,000	180,000	10,000
Engineering			
Basic	436,000	395,000	62,000
Inspection	224,000	204,000	44,000
Other	193,000	180,000	10,000
Contingency (10%)	731,000	659,000	80,000
SUBTOTAL	**$1,914,000**	**$1,746,000**	**$ 231,000**
TOTAL	**$9,228,000**	**$8,333,000**	**$1,031,000**

Notes

[1]Regional Treatment Plant which includes the Town of Onancock; capacity 0.600 MGD.

[2]Regional Treatment Plant which excludes the Town of Onancock; capacity 0.350 MGD.

[3]Anticipated Repairs and Upgrades to Town of Onancock System, estimates based on typical minimum improvements.

TABLE 27 (CONT.)

PROJECTED FINANCING

	Regional	Separate	Onancock
CDBG Grant[4]	$1,400,000	$1,400,000	-
FmHA Grant	2,250,000	2,250,000	-
FmHA Loan[5]	2,250,000	2,250,000	-
SWCB-VRLF Loan[6]	3,328,000	2,433,000	1,031,000
TOTAL	**$9,228,000**	**$8,333,000**	**$1,031,000**

PROJECTED ANNUAL COSTS

1. Debt Service			
FmHA	$133,400	$133,400	-
VRLF	166,400	121,600	51,600
Reserve	38,300	31,500	7,700
SUBTOTAL	**$338,100**	**$286,500**	**$ 59,300**
2. Operation and Maintenance Costs			
Plant	$150,000	$117,000	-
New Systems	37,000	37,000	-
Onancock System	40,000	-0-	169,300
SUBTOTAL	**$227,000**	**$154,000**	**$169,300**
TOTAL ANNUAL COST	**$565,100**	**$440,500**	**$228,600**
AVERAGE COST/ ERC/QUARTER[7]	**$ 87.53**	**$107.54**	**$ 96.86**
	(1614)	**(1024)**	**(590)**
AVERAGE COST/ERC/MONTH[8]	**$ 29.18**	**$ 35.85**	**$ 32.29**

TABLE 27 (CONT.)

Notes

[4]$1,400,000 of a total CDBG Grant of $2,100,000 for sewer.

[5]Loan at 5% for 38 years.

[6]Loan at 0% for 20 years.

[7]ERC = 20,700 gal/quarter; (#ERC's)
Cost for same ERC at Current Onancock rates = $63.60.

[8]Costs are based upon 100 percent participation of all customers/users in the service area.

Specific recommendations that result from this study are as follows:

1. This report be reviewed by the Central Accomack County Sewer Study Committee and that the recommendations of this report, or as they may be amended, be adopted by the Committee.

2. This report be presented to the governing bodies of the Towns of Accomac, Onancock, Onley and Melfa and Accomack County.

3. The recommendations of this Study be approved by the local governing bodies.

4. The local governing bodies begin the process to create the "regional authority" to implement the recommended project contained in this Report.

5. This Report, as approved, be submitted to the Virginia Department of Health and State Water Control Board for review and approval.

6. The project funding process be initiated with a meeting of the funding agencies and representatives of the local governing bodies, to prepare application for the next funding cycle.

7. Application be made to the State Water Control Board for appropriate modifications to the VPDES Discharge Permit.

8. The local governing bodies should establish, adopt and implement measures that will ensure maximum customer participation and financial support for the project.

9. The local governing bodies consider for authorization, a scope of engineering services, for the design and preparation of construction plans, specifications, contract documents, and operational instructions.

10. The local governing bodies confirm with the Engineer, a detailed time schedule for implementation of the project, include design, reviews, public hearings, construction and startup.

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APPENDIX

APPENDIX

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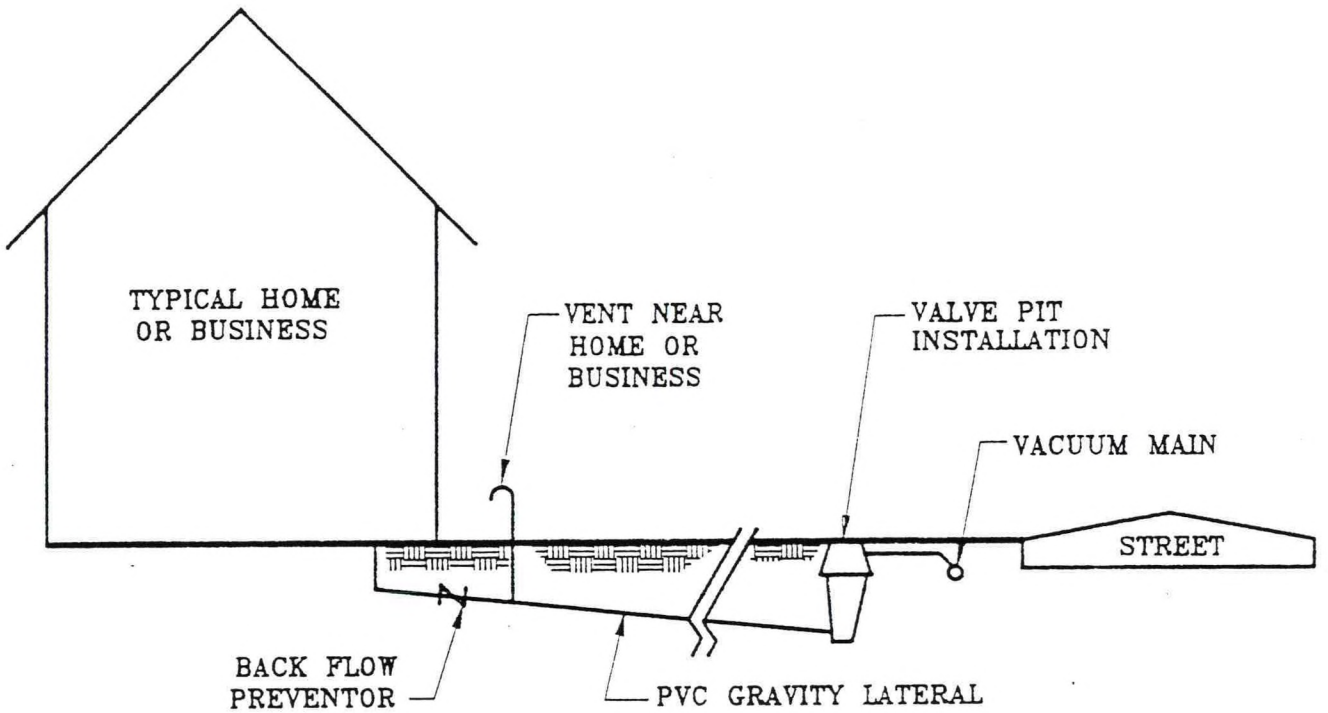
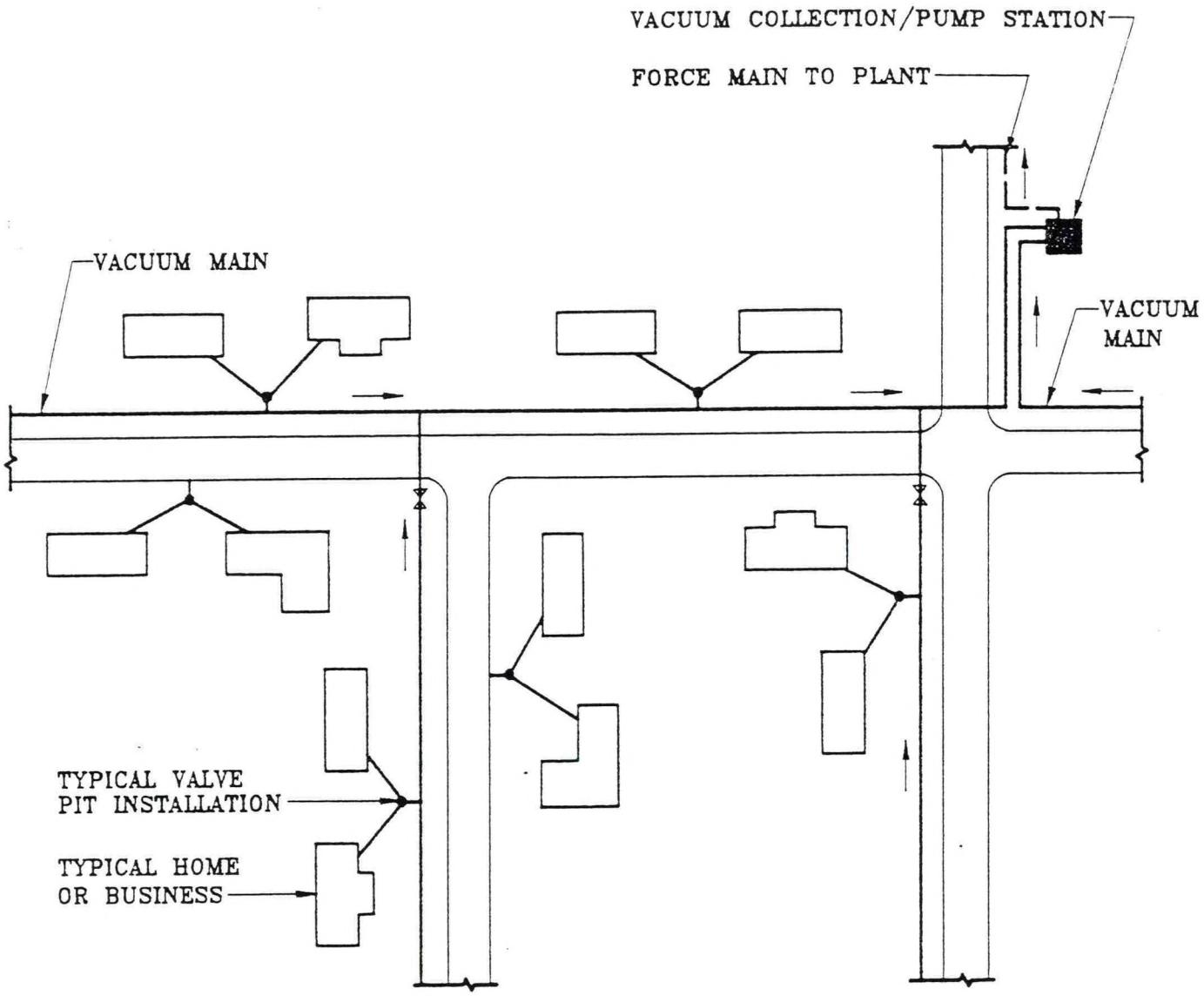
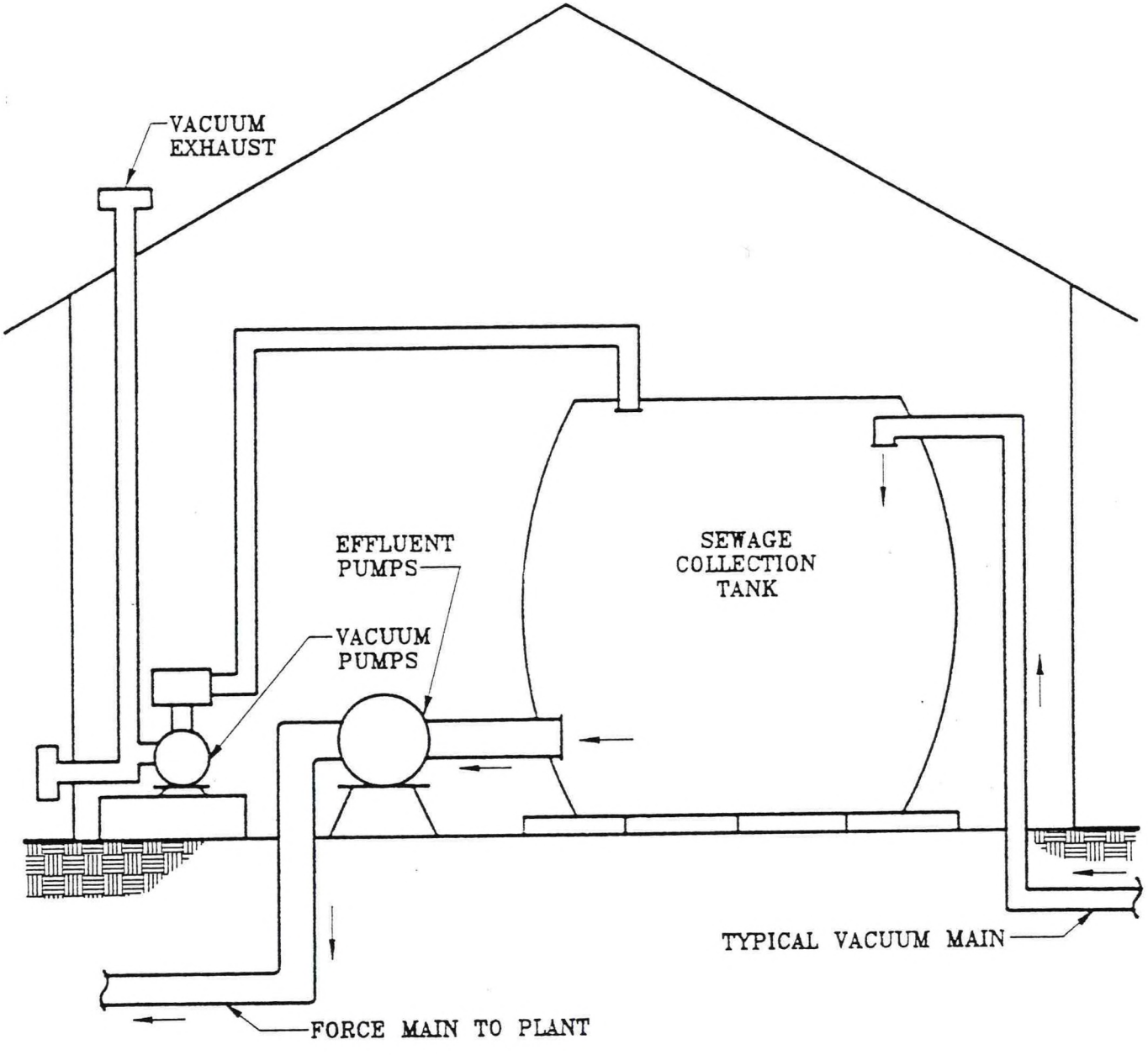


TYPICAL VACUUM SERVICE CONNECTION



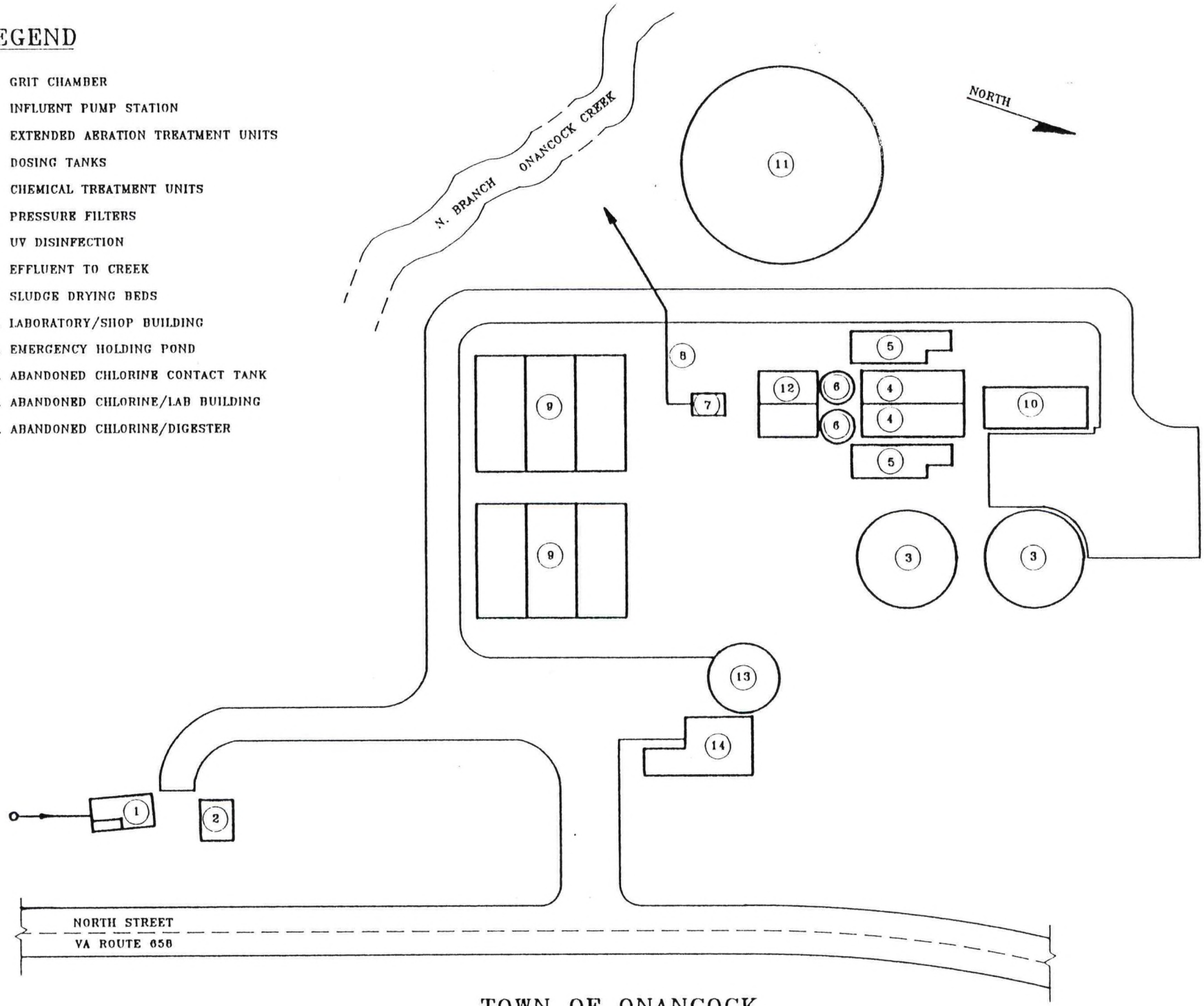
TYPICAL VACUUM COLLECTION SYSTEM



VACUUM COLLECTION PUMP STATION

LEGEND

1. GRIT CHAMBER
2. INFLUENT PUMP STATION
3. EXTENDED AERATION TREATMENT UNITS
4. DOSING TANKS
5. CHEMICAL TREATMENT UNITS
6. PRESSURE FILTERS
7. UV DISINFECTION
8. EFFLUENT TO CREEK
9. SLUDGE DRYING BEDS
10. LABORATORY/SHOP BUILDING
11. EMERGENCY HOLDING POND
12. ABANDONED CHLORINE CONTACT TANK
13. ABANDONED CHLORINE/LAB BUILDING
14. ABANDONED CHLORINE/DIGESTER



TOWN OF ONANCOCK
WASTEWATER TR' TMENT PLANT

ACCOMACK SEWER STUDY
TOWN OF ONANCOCK SYSTEM FLOWS

DATE	ACTUAL WATER PUMPAGE(GAL)	DAYS IN MONTH	AVERAGE PER DAY	PROJECTED SEWER FLOWS (AVE X 0.80)	ACTUAL SEWER FLOWS(GAL)	AVERAGE PER DAY	PERCENT OF PROJECTED FLOW
AUG 1991	5,439,200	31	175,458	140,366	3,950,000	127,419	91%
SEP 1991	4,930,100	30	164,337	131,469	3,665,000	122,167	93%
OCT 1991	5,085,400	31	164,045	131,236	3,898,000	125,742	96%
NOV 1991	4,605,300	30	153,510	122,808	3,415,000	113,833	93%
DEC 1991	4,610,800	31	148,735	118,988	3,511,000	113,258	95%
JAN 1992	4,467,000	31	144,097	115,277	3,831,000	123,581	107%
FEB 1992	4,366,900	29	150,583	120,466	3,757,000	129,552	108%
MAR 1992	4,521,700	31	145,861	116,689	4,409,000	142,226	122%
APR 1992	4,502,300	30	150,077	120,061	4,034,000	134,467	112%
MAY 1992	5,036,300	31	162,461	129,969	4,752,000	153,290	118%
JUN 1992	5,140,000	30	171,333	137,067	5,298,000	176,600	129%
JUL 1992	5,668,500	31	182,855	146,284	5,129,000	165,452	113%
AUG 1992		31			6,422,000	207,161	
AVERAGE: AUG 1991-JULY 1992				127,557		135,632	106%

DEEP CREEK, RT 657 (2)
VACUUM COLLECTION
CENTRAL ACCOMACK SEWER PROJECT
COST ESTIMATE

CONSTRUCTION COSTS

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL
LARGE MAIN	LF	2000	$20.00	$40,000.00
SMALL MAIN	LF	1500	$17.00	$25,500.00
VALVES ON MAIN	EA	4	$500.00	$2,000.00
COLLECTION/PUMP STATION	EA	1	$150,000.00	$150,000.00
FORCE MAIN TO	EA	23500	$15.00	$352,500.00
VALVE PIT PACKAGE	EA	38	$3,000.00	$114,000.00
			SUBTOTAL	$684,000.00

RELATED COSTS

LAND AND RIGHT-OF-WAY	$17,100.00
LEGAL SERVICES	$5,472.00
ADMINISTRATION	$5,472.00
ENGINEERING	
BASIC	$47,880.00
INSPECTION	$30,096.00
OTHER	$17,100.00
CONTINGENCY (10%)	$68,400.00
SUBTOTAL	$191,520.00

TOTAL COST	$875,520.00
COST PER CONNECTION	$11,520

RT 658, NEAR RT 661 (3)
VACUUM COLLECTION
CENTRAL ACCOMACK SEWER PROJECT
COST ESTIMATE

CONSTRUCTION COSTS

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL
LARGE MAIN	LF	3000	$20.00	$60,000.00
SMALL MAIN	LF	4000	$17.00	$68,000.00
VALVES ON MAIN	EA	2	$500.00	$1,000.00
COLLECTION/PUMP STATION	EA	1	$150,000.00	$150,000.00
FORCE MAIN TO	EA	21000	$15.00	$315,000.00
VALVE PIT PACKAGE	EA	37	$3,000.00	$111,000.00
			SUBTOTAL	$705,000.00

RELATED COSTS

LAND AND RIGHT-OF-WAY	$17,625.00
LEGAL SERVICES	$5,640.00
ADMINISTRATION	$5,640.00
ENGINEERING	
BASIC	$49,350.00
INSPECTION	$31,020.00
OTHER	$17,625.00
CONTINGENCY (10%)	$70,500.00
SUBTOTAL	$197,400.00

TOTAL COST	$902,400.00
COST PER CONNECTION	$12,195

GRAYSVILLE, RT609 (4)
GRAVITY COLLECTION
CENTRAL ACCOMACK SEWER PROJECT
COST ESTIMATE

CONSTRUCTION COSTS

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL
8" GRAVITY SEWER	LF	3000	$40.00	$120,000.00
MANHOLES	EA	13	$1,800.00	$23,400.00
PUMP STATION	EA	1	$50,000.00	$50,000.00
FORCE MAIN TO ACCOMAC	LF	4000	$15.00	$60,000.00
CONNECTIONS	EA	64	$800.00	$51,200.00
			SUBTOTAL	$304,600.00

RELATED COSTS

LAND AND RIGHT-OF-WAY	$7,615.00
LEGAL SERVICES	$2,436.80
ADMINISTRATION	$2,436.80
ENGINEERING	
BASIC	$21,322.00
INSPECTION	$13,402.40
OTHER	$7,615.00
CONTINGENCY (10%)	$30,460.00
SUBTOTAL	$85,288.00

TOTAL COST	$389,888.00
COST PER CONNECTION	$6,092

GRAYSVILLE, RT 609 (4)
VACUUM COLLECTION
CENTRAL ACCOMACK SEWER PROJECT
COST ESTIMATE

CONSTRUCTION COSTS

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL
LARGE MAIN	LF	1500	$20.00	$30,000.00
SMALL MAIN	LF	1500	$17.00	$25,500.00
VALVES ON MAIN	EA	2	$500.00	$1,000.00
COLLECTION/PUMP STATION	EA	1	$150,000.00	$150,000.00
FORCE MAIN TO	EA	4000	$15.00	$60,000.00
VALVE PIT PACKAGE	EA	32	$3,000.00	$96,000.00
			SUBTOTAL	$362,500.00

RELATED COSTS

LAND AND RIGHT-OF-WAY	$9,062.50
LEGAL SERVICES	$2,900.00
ADMINISTRATION	$2,900.00
ENGINEERING	
BASIC	$25,375.00
INSPECTION	$15,950.00
OTHER	$9,062.50
CONTINGENCY (10%)	$36,250.00
SUBTOTAL	$101,500.00

TOTAL COST	$464,000.00
COST PER CONNECTION	$7,250

DOGWOOD AND REDWOOD RD, RT 639,609 (5)
GRAVITY COLLECTION
CENTRAL ACCOMACK SEWER PROJECT
COST ESTIMATE

CONSTRUCTION COSTS

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL
8" GRAVITY SEWER	LF	5500	$40.00	$220,000.00
MANHOLES	EA	24	$1,800.00	$43,200.00
PUMP STATION	EA	1	$50,000.00	$50,000.00
FORCE MAIN TO MELFA	LF	6500	$15.00	$97,500.00
CONNECTIONS	EA	52	$800.00	$41,600.00
			SUBTOTAL	$452,300.00

RELATED COSTS

LAND AND RIGHT-OF-WAY	$11,307.50
LEGAL SERVICES	$3,618.40
ADMINISTRATION	$3,618.40
ENGINEERING	
BASIC	$31,661.00
INSPECTION	$19,901.20
OTHER	$11,307.50
CONTINGENCY (10%)	$45,230.00
SUBTOTAL	$126,644.00

TOTAL COST	$578,944.00
COST PER CONNECTION	$11,134

DOGWOOD AND REDWOOD RD, RT 639,609 (5)
VACUUM COLLECTION
CENTRAL ACCOMACK SEWER PROJECT
COST ESTIMATE

CONSTRUCTION COSTS

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL
LARGE MAIN	LF	2000	$20.00	$40,000.00
SMALL MAIN	LF	3000	$17.00	$51,000.00
VALVES ON MAIN	EA	4	$500.00	$2,000.00
COLLECTION/PUMP STATION	EA	1	$150,000.00	$150,000.00
FORCE MAIN TO	EA	6500	$15.00	$97,500.00
VALVE PIT PACKAGE	EA	26	$3,000.00	$78,000.00
			SUBTOTAL	$418,500.00

RELATED COSTS

LAND AND RIGHT-OF-WAY	$10,462.50
LEGAL SERVICES	$3,348.00
ADMINISTRATION	$3,348.00
ENGINEERING	
BASIC	$29,295.00
INSPECTION	$18,414.00
OTHER	$10,462.50
CONTINGENCY (10%)	$41,850.00
SUBTOTAL	$117,180.00

TOTAL COST	$535,680.00
COST PER CONNECTION	$10,302

SAVAGEVILLE, RT 718 (6)
GRAVITY COLLECTION
CENTRAL ACCOMACK SEWER PROJECT
COST ESTIMATE

CONSTRUCTION COSTS

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL
8" GRAVITY SEWER	LF	5000	$40.00	$200,000.00
MANHOLES	EA	22	$1,800.00	$39,600.00
PUMP STATION	EA	1	$50,000.00	$50,000.00
FORCE MAIN TO ONANCOCK	LF	7500	$15.00	$112,500.00
CONNECTIONS	EA	46	$800.00	$36,800.00
			SUBTOTAL	$438,900.00

RELATED COSTS

LAND AND RIGHT-OF-WAY	$10,972.50
LEGAL SERVICES	$3,511.20
ADMINISTRATION	$3,511.20
ENGINEERING	
BASIC	$30,723.00
INSPECTION	$19,311.60
OTHER	$10,972.50
CONTINGENCY (10%)	$43,890.00
SUBTOTAL	$122,892.00

TOTAL COST	$561,792.00
COST PER CONNECTION	$12,213

SOUTH CHESCONESSEX, RT 655 (7)
GRAVITY COLLECTION
CENTRAL ACCOMACK SEWER PROJECT
COST ESTIMATE

CONSTRUCTION COSTS

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL
8" GRAVITY SEWER	LF	3500	$40.00	$140,000.00
MANHOLES	EA	15	$1,800.00	$27,000.00
PUMP STATION	EA	1	$50,000.00	$50,000.00
FORCE MAIN TO ONANCOCK	LF	17000	$15.00	$255,000.00
CONNECTIONS	EA	46	$800.00	$36,800.00
			SUBTOTAL	$508,800.00

RELATED COSTS

LAND AND RIGHT-OF-WAY	$12,720.00
LEGAL SERVICES	$4,070.40
ADMINISTRATION	$4,070.40
ENGINEERING	
BASIC	$35,616.00
INSPECTION	$22,387.20
OTHER	$12,720.00
CONTINGENCY (10%)	$50,880.00
SUBTOTAL	$142,464.00

TOTAL COST	$651,264.00
COST PER CONNECTION	$14,158

DAUGHERTY, RT 648,605 (8)
GRAVITY COLLECTION
CENTRAL ACCOMACK SEWER PROJECT
COST ESTIMATE

CONSTRUCTION COSTS

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL
8" GRAVITY SEWER	LF	4500	$40.00	$180,000.00
MANHOLES	EA	20	$1,800.00	$36,000.00
PUMP STATION	EA	1	$50,000.00	$50,000.00
FORCE MAIN TO ACCOMAC	LF	9500	$15.00	$142,500.00
CONNECTIONS	EA	46	$800.00	$36,800.00
			SUBTOTAL	$445,300.00

RELATED COSTS

LAND AND RIGHT-OF-WAY	$11,132.50
LEGAL SERVICES	$3,562.40
ADMINISTRATION	$3,562.40
ENGINEERING	
BASIC	$31,171.00
INSPECTION	$19,593.20
OTHER	$11,132.50
CONTINGENCY (10%)	$44,530.00
SUBTOTAL	$124,684.00

TOTAL COST	$569,984.00
COST PER CONNECTION	$12,391

RT 658, NEAR RT 735 (9)
GRAVITY COLLECTION
CENTRAL ACCOMACK SEWER PROJECT
COST ESTIMATE

CONSTRUCTION COSTS

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL
8" GRAVITY SEWER	LF	4500	$40.00	$180,000.00
MANHOLES	EA	20	$1,800.00	$36,000.00
PUMP STATION	EA	1	$50,000.00	$50,000.00
FORCE MAIN TO ONANCOCK	LF	3500	$15.00	$52,500.00
CONNECTIONS	EA	42	$800.00	$33,600.00
			SUBTOTAL	$352,100.00

RELATED COSTS

LAND AND RIGHT-OF-WAY	$8,802.50
LEGAL SERVICES	$2,816.80
ADMINISTRATION	$2,816.80
ENGINEERING	
BASIC	$24,647.00
INSPECTION	$15,492.40
OTHER	$8,802.50
CONTINGENCY (10%)	$35,210.00
SUBTOTAL	$98,588.00

TOTAL COST	$450,688.00
COST PER CONNECTION	$10,731

RT 609 AND RT 648 (10)
GRAVITY COLLECTION
CENTRAL ACCOMACK SEWER PROJECT
COST ESTIMATE

CONSTRUCTION COSTS

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL
8" GRAVITY SEWER	LF	5500	$40.00	$220,000.00
MANHOLES	EA	24	$1,800.00	$43,200.00
PUMP STATION	EA	1	$50,000.00	$50,000.00
FORCE MAIN TO TASLEY	LF	2500	$15.00	$37,500.00
CONNECTIONS	EA	38	$800.00	$30,400.00
			SUBTOTAL	$381,100.00

RELATED COSTS

LAND AND RIGHT-OF-WAY	$9,527.50
LEGAL SERVICES	$3,048.80
ADMINISTRATION	$3,048.80
ENGINEERING	
BASIC	$26,677.00
INSPECTION	$16,768.40
OTHER	$9,527.50
CONTINGENCY (10%)	$38,110.00
SUBTOTAL	$106,708.00

TOTAL COST	$487,808.00
COST PER CONNECTION	$12,837

LOCUSTVILLE (11)
GRAVITY COLLECTION
CENTRAL ACCOMACK SEWER PROJECT
COST ESTIMATE

CONSTRUCTION COSTS

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL
8" GRAVITY SEWER	LF	1500	$40.00	$60,000.00
MANHOLES	EA	7	$1,800.00	$12,600.00
PUMP STATION	EA	1	$50,000.00	$50,000.00
FORCE MAIN TO	LF	16000	$15.00	$240,000.00
CONNECTIONS	EA	34	$800.00	$27,200.00
			SUBTOTAL	$389,800.00

RELATED COSTS

LAND AND RIGHT-OF-WAY	$9,745.00
LEGAL SERVICES	$3,118.40
ADMINISTRATION	$3,118.40
ENGINEERING	
BASIC	$27,286.00
INSPECTION	$17,151.20
OTHER	$9,745.00
CONTINGENCY (10%)	$38,980.00
SUBTOTAL	$109,144.00

TOTAL COST	$498,944.00
COST PER CONNECTION	$14,675

CHESCONESSEX, RT 656 (12)
GRAVITY COLLECTION
CENTRAL ACCOMACK SEWER PROJECT
COST ESTIMATE

CONSTRUCTION COSTS

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL
8" GRAVITY SEWER	LF	1500	$40.00	$60,000.00
MANHOLES	EA	7	$1,800.00	$12,600.00
PUMP STATION	EA	1	$50,000.00	$50,000.00
FORCE MAIN TO ONANCOCK	LF	21000	$15.00	$315,000.00
CONNECTIONS	EA	31	$800.00	$24,800.00
			SUBTOTAL	$462,400.00

RELATED COSTS

LAND AND RIGHT-OF-WAY	$11,560.00
LEGAL SERVICES	$3,699.20
ADMINISTRATION	$3,699.20
ENGINEERING	
BASIC	$32,368.00
INSPECTION	$20,345.60
OTHER	$11,560.00
CONTINGENCY (10%)	$46,240.00
SUBTOTAL	$129,472.00

TOTAL COST	$591,872.00
COST PER CONNECTION	$19,093

TEXACO TOWN RD, RT 731, 639, NEAR 625 (13)
GRAVITY COLLECTION
CENTRAL ACCOMACK SEWER PROJECT
COST ESTIMATE

CONSTRUCTION COSTS

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL
8" GRAVITY SEWER	LF	4000	$40.00	$160,000.00
MANHOLES	EA	17	$1,800.00	$30,600.00
PUMP STATION	EA	1	$50,000.00	$50,000.00
FORCE MAIN TO MELFA	LF	6500	$15.00	$97,500.00
CONNECTIONS	EA	30	$800.00	$24,000.00
			SUBTOTAL	$362,100.00

RELATED COSTS

LAND AND RIGHT-OF-WAY	$9,052.50
LEGAL SERVICES	$2,896.80
ADMINISTRATION	$2,896.80
ENGINEERING	
BASIC	$25,347.00
INSPECTION	$15,932.40
OTHER	$9,052.50
CONTINGENCY (10%)	$36,210.00
SUBTOTAL	$101,388.00

TOTAL COST	$463,488.00
COST PER CONNECTION	$15,450

SCHOONER BAY, RT 802 (14)
GRAVITY COLLECTION
CENTRAL ACCOMACK SEWER PROJECT
COST ESTIMATE

CONSTRUCTION COSTS

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL
8" GRAVITY SEWER	LF	4500	$40.00	$180,000.00
MANHOLES	EA	20	$1,800.00	$36,000.00
PUMP STATION	EA	1	$50,000.00	$50,000.00
FORCE MAIN TO ONANCOCK	LF	22500	$15.00	$337,500.00
CONNECTIONS	EA	20	$800.00	$16,000.00
			SUBTOTAL	$619,500.00

RELATED COSTS

LAND AND RIGHT-OF-WAY	$15,487.50
LEGAL SERVICES	$4,956.00
ADMINISTRATION	$4,956.00
ENGINEERING	
BASIC	$43,365.00
INSPECTION	$27,258.00
OTHER	$15,487.50
CONTINGENCY (10%)	$61,950.00
SUBTOTAL	$173,460.00

TOTAL COST	$792,960.00
COST PER CONNECTION	$39,648

MT NEBO RD, RT 634, 637 (15)
GRAVITY COLLECTION
CENTRAL ACCOMACK SEWER PROJECT
COST ESTIMATE

CONSTRUCTION COSTS

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL
8" GRAVITY SEWER	LF	1500	$40.00	$60,000.00
MANHOLES	EA	7	$1,800.00	$12,600.00
PUMP STATION	EA	1	$50,000.00	$50,000.00
FORCE MAIN TO ONANCOCK	LF	23500	$15.00	$352,500.00
CONNECTIONS	EA	16	$800.00	$12,800.00
			SUBTOTAL	$487,900.00

RELATED COSTS

LAND AND RIGHT-OF-WAY	$12,197.50
LEGAL SERVICES	$3,903.20
ADMINISTRATION	$3,903.20
ENGINEERING	
BASIC	$34,153.00
INSPECTION	$21,467.60
OTHER	$12,197.50
CONTINGENCY (10%)	$48,790.00
SUBTOTAL	$136,612.00

TOTAL COST	$624,512.00
COST PER CONNECTION	$39,032

Central Accomack Sewer Project
Annual Operation and Maintenance Costs
Cost Breakdown

A. NEW COLLECTION SYSTEM

Assumptions: Average Pump = 10 Hp. @ 70% efficiency
Power Cost = $0.06 per KWH
Average Labor Cost = $9.00 per hour

1. Electrical Costs = $\frac{HP}{\text{efficiency}}$ x 0.7457 x 8 hr./day x 365 days/yr. x $0.06/KWH

   = $1,870/yr./pump station

2. Labor Costs =

   Assume 1 hour per pump station on average day
   1 hour per day x $9.00/hr. x 365 days = $3,285/yr./pump station

	Vacuum System			Gravity System		
SYSTEM	NO. PUMP STATIONS	LABOR POWER/ UNIT COST	TOTAL	NO. PUMP STATIONS	LABOR POWER/ UNIT COST	TOTAL
Accomac	2	5,155	$10,310	1	5,155	5,155
Onley	1	5,155	5,155	2	5,155	10,310
Tasley	1	5,155	5,155	1	5,155	5,155
Melfa	1	5,155	5,155	4	5,155	20,620
Subtotal			$25,775	Subtotal		$46,395
Misc. Repairs			$11,225	Misc. Repairs		$3,000
	TOTAL		$37,000	TOTAL		$50,000

B. TOWN OF ONANCOCK COLLECTION SYSTEM

Estimated from Town's annual budget estimate:

- Repair and Maintenance	$19,000
- Supplies	1,200
- Miscellaneous	1,700
SUBTOTAL	**$21,900**
LABOR (25% OF TOTAL)	**$18,100**
TOTAL	**$40,000**

C. TREATMENT FACILITY

	UPGRADED FACILITY	NEW 0.60 MGD FACILITY	NEW 0.35 MGD FACILITY
Labor: Use Average Salary = $21,250/yr. (No. Emp.)	(4) $85,000	(4) $85,000	(3) $65,000
Electricity	$35,000	$25,000	$22,000
Other - Chemicals, Equipment Services, etc.	$30,000	$30,000	$30,000
TOTAL	**$150,000**	**$140,000**	**$117,000**

New Regional Treatment Facility
600,000 GPD Sequencing Batch Reactor (SBR)
Central Accomack Sewer Project
Cost Estimate

CONSTRUCTION COSTS

LINE ITEM	COST
Grit Chamber	$ 90,000
Mechanical Screen	55,000
Influent Pump Station	225,000
Flow Splitter	20,000
SBR Basins and Controls	725,000
Equalization Basin	200,000
Chemical Coagulation, Settling	300,000
Chemical Storage and Feed	130,000
Gravity Filters	280,000
U.V. Disinfection	150,000
Aerobic Digester	230,000
Sludge Dewatering, Plate and Frame Press	350,000
Yard Piping	160,000
Laboratory	130,000
Electrical	135,000
Generator	50,000
Site Work	80,000
Instrumentation	60,000
SUBTOTAL	**$3,370,000**

RELATED COSTS

Land and Right-of-Way	$ 40,000
Legal Services	20,000
Administration	25,000
Engineering	
Basic	218,000
Inspection	118,000
Other	80,000
Contingency (10%)	337,000
SUBTOTAL	**$ 838,000**
TOTAL	**$4,208,000**

New Treatment Facility - Onancock Independent
350,000 GPD Sequencing Batch Reactor (SBR)
Central Accomack Sewer Project
Cost Estimate

CONSTRUCTION COSTS

LINE ITEM	COST
Grit Chamber	$ 75,000
Mechanical Screen	45,000
Influent Pump Station	135,000
Flow Splitter	20,000
SBR Basins and Controls	475,000
Equalization Basin	148,000
Chemical Coagulation, Settling	195,000
Chemical Storage and Feed	102,000
Gravity Filters	162,000
U.V. Disinfection	75,000
Aerobic Digester	175,000
Sludge Dewatering, Plate and Frame Press	280,000
Yard Piping	112,000
Laboratory	130,000
Electrical	125,000
Generator	50,000
Site Work	75,000
Instrumentation	40,000
SUBTOTAL	**$2,379,000**

RELATED COSTS

Land and Right-of-Way	$ 40,000
Legal Services	17,000
Administration	25,000
Engineering	
Basic	162,000
Inspection	93,000
Other	45,000
Contingency (10%)	238,000
SUBTOTAL	**$ 620,000**
TOTAL	**$2,999,000**

New Regional Treatment Facility
600,000 GPD Biolac Process
Central Accomack Sewer Project
Cost Estimate

CONSTRUCTION COSTS

LINE ITEM	COST
Grit Chamber	$ 90,000
Mechanical Screen	55,000
Influent Pump Station	225,000
Flow Splitter	20,000
Aerated Lagoons Biolac Process	720,000
Secondary Clarifier	150,000
Sludge Return	130,000
Chemical Coagulation, Settling	300,000
Chemical Storage and Feed	130,000
Gravity Filters	280,000
U.V. Disinfection	150,000
Aerobic Digester	210,000
Sludge Dewatering, Plate and Frame Press	350,000
Yard Piping	160,000
Laboratory	130,000
Electrical	100,000
Generator	50,000
Site Work	80,000
Instrumentation	50,000
SUBTOTAL	**$3,380,000**

RELATED COSTS

Land and Right-of-Way	$ 65,000
Legal Services	20,000
Administration	25,000
Engineering	
Basic	218,000
Inspection	118,000
Other	80,000
Contingency (10%)	338,000
SUBTOTAL	**$ 864,000**
TOTAL	**$4,244,000**

New Treatment Facility - Onancock Independent
350,000 GPD Biolac Process
Central Accomack Sewer Project
Cost Estimate

CONSTRUCTION COSTS

LINE ITEM	COST
Grit Chamber	$ 75,000
Mechanical Screen	45,000
Influent Pump Station	135,000
Flow Splitter	15,000
Aerated Lagoons Biolac Process	450,000
Secondary Clarifier	80,000
Sludge Return	108,000
Chemical Coagulation, Settling	195,000
Chemical Storage and Feed	102,000
Gravity Filters	162,000
U.V. Disinfection	75,000
Aerobic Digester	175,000
Sludge Dewatering, Plate and Frame Press	280,000
Yard Piping	112,000
Laboratory	130,000
Electrical	100,000
Generator	50,000
Site Work	75,000
Instrumentation	20,000
SUBTOTAL	**$2,404,000**

RELATED COSTS

Land and Right-of-Way	$ 43,000
Legal Services	17,000
Administration	25,000
Engineering	
Basic	162,000
Inspection	93,000
Other	45,000
Contingency (10%)	238,000
SUBTOTAL	**$ 623,000**
TOTAL	**$3,027,000**

New Regional Treatment Facility
600,000 GPD LEMNA System
Central Accomack Sewer Project
Cost Estimate

CONSTRUCTION COSTS

Grit Chamber	$ 90,000
Mechanical Screen	55,000
Influent Pump Station	225,000
Pond/Lagoon Construction	600,000
Pond/Lagoon Liner	600,000
Lemna Equipment	900,000
U.V. Disinfection	150,000
Biomass Management System	85,000
Yard Piping	75,000
Laboratory	130,000
Electrical	100,000
Generator	50,000
Site Work	80,000
Instrumentation	50,000
SUBTOTAL	**$3,190,000**
RELATED	**829,000**
TOTAL	**$4,019,000**

New Regional Treatment Facility
350,000 GPD LEMNA System
Central Accomack Sewer Project
Cost Estimate

CONSTRUCTION COSTS

Grit Chamber	$ 75,000
Mechanical Screen	45,000
Influent Pump Station	135,000
Pond/Lagoon Construction	400,000
Pond/Lagoon Liner	400,000
Lemna Equipment	300,000
U.V. Disinfection	75,000
Biomass Management System	50,000
Yard Piping	50,000
Laboratory	130,000
Electrical	100,000
Generator	50,000
Site Work	50,000
Instrumentation	20,000
SUBTOTAL	**$1,880,000**
RELATED (26%)	**489,000**
TOTAL	**$2,369,000**

appendix.acc

VIRGINIA
Community Development
Block Grant

FY 1991
PLANNING GRANT

Virginia Department of
Housing and Community Development
205 North Fourth Street
Richmond, Virginia 23219

1991

VCDBG Planning Grant

Part I Proposal Summary and Assurance

1. Applicant Jurisdiction: The Towns of Accomac and Onley

2. Project Title: Central Accomack Preliminary Engineering Sewer System Study

3. Project Type: Sewer Improvements

4. National CD Objective Addressed:

   X Principally Benefit LMI Persons
   _____ Prevention/Elimination of Slums and Blight

5. VCDBG funds requested: $25,000

6. Chief Elected Official: William J. Weaver, Mayor Town of Accomac

7. Address: P.O. Box , Accomac, VA, 23301

8. Contact Person: Jack Green, Director of Planning

9. Address: A-NPDC, P.O. Box 417, Accomac, VA 23301

10. Telephone: (804) 787 - 2936

11. Type of Proposal: Complete A, B, or C

    A. Single Locality: _____ B. On Behalf of:

    C. Regional, including localities of: Town of Accomac Town of Onley

12. If applicant also has a Community Improvement Grant (CIG) or a pending CIG proposal, please indicate the objective under which the CIG project falls:

    _____ Comprehensive Community Development
    _____ Housing
    _____ Community Facilities
    _____ Economic Development

13. To the best of my knowledge and belief, information presented in this Proposal is true and correct.

    Chief Administrative Officer of Applicant

    Name and Title: Honorable William J. Weaver, Mayor

    Address: P.O. Box , Accomac, VA 23301

    Signature _____ Date: 7-12-59
    (Attach Resolution of Governing Body)

Part II Project Information

1. Local Community Development and Housing Objectives and Needs

(A) Locality's Community Development and Housing Needs and Objectives:

The Accomac Town Plan, adopted April 1989, states the following Objectives and Needs:

1. To promote the development of community facilities in the Town, such as ... central sewer... that would improve the quality of life for Town residents (p. 43).
2. To maintain a policy of supporting economic activities in Accomack County that would have a positive effect on Accomac (p. 43).
3. To eliminate substandard housing, to stimulate a variety of quality housing types and to ensure equal housing opportunity for all races (p. 42).

The Onley Town Plan, adopted May 1981, states the following Objectives and Needs:

1. To encourage the extension of sanitary sewer to service areas within the Town (p. 17).
2. To assist in creating a favorable environment for the construction of safe, decent, new homes with adequate provisions for ... waste disposal... (p. 16).

(B) Project Area's Community Development and Housing Needs:

The project area for the proposed study includes the Towns of Accomac, Onley, Melfa and the adjacent areas of Accomack County (Map 1). According to the 1980 U.S. Census, the project area contains a population of 7,187 persons of which 2,494 (53%) are LMI. Also, the project area contains 3,190 housing units of which 527 (17%) lack complete plumbing. A number of factors have created difficulties in providing housing and sewer services to these LMI individuals; these factors are outlined below.

1. Soil conditions are a major constraint to providing sewer service to LMI persons. Soils in the project area have been identified as having a low permeability and are associated with a high water table. These conditions coupled together create difficultly in obtaining permits for on-site septic systems.

2. The Town of Onancock operates the only sewerage facility in the project area and future land use planning for the project area, including the 1974 Water Quality Management (Section 208) Plan, has recommended that the Onancock facility be expanded to serve the project area. However, on a number of occasions the flows to the facility have exceeded capacity forcing the discharge of untreated sewage into Onancock Creek. Due to improper discharges, the facility is currently operating under a consent order from the Virginia State Water Control Board (VSWCB). These conditions indicate that Onancock may not be able to service the project area.

3. The Accomack County Industrial Development Authority (IDA) provides limited sewer service to businesses through a force main connecting the Accomack County Industrial Park to the Onancock facility. However, due to a desire to conserve capacity for the Park and the uncertainty of Onancock's ability to continue to provide service, the IDA has placed a moratorium on additional hook-ups to the force main. The IDA also has a policy of not allowing connections for residential uses and has recently denied a June 18, 1991, connection request from an LMI resident of the Project Area whose unsuitable soils prevented participation in the Indoor Plumbing Program unless the request was granted (See Attachments).

4. An additional factor in the inability of expansion of the Onancock facility are the Chesapeake Bay Initiatives. Onancock's facility discharges into the Chesapeake Bay. New discharges to the Bay are generally discouraged because the Bay is a Priority One water body. This acts to increase the difficultly of expanding the Onancock facility to service the region.

The factors described above have led to the need for, and the initiation of, the proposed study.

Sources: Accomac Town Plan (1989), Onley Town Plan (1981), 1980 U.S. Census, Accomack-Northampton Water Quality Management Plan (1974).

2. Project Design and Strategy:

The proposed project will investigate public sewage treatment alternatives for the proposed project area. Total cost of the project is $47,500. VCDBG Planning Grant funds are requested in the amount of $25,000 (53% of the total project cost). Accomack County has committed $15,000 to the proposed project (32% of the total project cost). The Accomack-Northampton Planning District Commission (A-NPDC) will provide $7,500 (15% of the total project cost . Funds requested from the VCDBG Planning Grant Program are equal to the percentage of LMI persons to served by the proposed project.

Three activities will be conducted under the proposed project. These activities are described below.

Activity 1. Preliminary Engineering Report

Activity 1 of the proposed project will be a preliminary engineering study report that analyzes the available alternatives and recommends a specific alternative for implementation. Total cost of the proposed project will be $40,000. The funding for the proposed project will be provided by Accomack County ($15,000), and a VCDBG Planning Grant ($25,000).

The end product of Activity 1 will be a preliminary engineering report (PER) that will meet VCDBG requirements for a PER and provide sufficient detail to prepare an FY 1993 Community Improvement Grant (CIG). A qualified consulting professional engineering firm will be selected pursuant to VCDBG Planning Grant Procurement Policies procedures.

Activity 2. Income and Household Survey

According to the 1980 U.S. Census, 53% of the total population in the study area are LMI. A-NPDC staff will conduct a house-to-house income and housing conditions survey of the 3,190 housing units within the project area.

- Identify LMI persons.
- Identify housing units that lack indoor plumbing.
- Identify level of interest in central sewer facility.
- Identiiy housing units lacking indoor plumbing and in need of rehabilitation in order to justify bathroom additions.

The funding for the proposed activity will be provided by the A-NPDC ($5,000).

Activity 3. VCDBG CIG Application

A-NPDC staff will prepare an FY 1993 VCDBG CIG application which will be submitted by the participating localities. Two public hearings will be conducted as part of this activity.

Without VCDBG Planning Grant funds, the preliminary engineering report cannot be undertaken. Neither the Towns nor Accomack County has a professional engineer on staff. Funds to hire a consulting firm are otherwise unavailable to these localities. Unless a central sewerage facility is developed for the region, due the factors outlined above, it is unlikely that the community development and housing needs will be able to be fully addressed.

3. Comprehensiveness of Community Development Effort:

The Central Accomack Preliminary Sewer Feasibility Study will result in the design of a project that will address 100% of the sewer treatment needs of LMI project area residents. Sewer treatment needs will be met through the development of a sewerage facility. The project will also provide for the installation of indoor plumbing to housing units occupied by LMI persons. Development of the sewer facilities will allow additional unmet housing needs in the project area to be addressed in the future.

4. Choice of Project:

The choice for proposed project stems from a number of factors. These factors are described below.

1. Benefit to LMI. According to the 1980 U.S. Census, 53% of the project area population is LMI and approximately 527 housing units in the proposed service lack complete plumbing. Due to soil conditions, as discussed above, it is becoming increasingly difficult to meet Virginia Department of Health Regulations for on-site sewage disposal. Therefore, central sewer treatment may be the only alternative to providing sewerage facilities to the project area.
2. Comprehensive Plans. The Accomack County Comprehensive Plan, (1989, p. V-3) specifically recommends that future growth be directed to the area in order to enhance development of community facilities. The Melfa Town Plan, adopted June 1982, identified the development of a central sewerage facility as an option to insure the public health and safety of Town residents (p. 20). As stated above, both the Towns of Accomac and Onley recognize the need for central sewer treatment. The Comprehensive Plan: Water and Sewer Development, Accomack County (1968, p. 101), the Accomack-Northampton Planning District Preliminary Water Quality Management Plan (1974, p. 36), all recommended that wastewater treatment facilities be established for the Accomac-Onley-Onancock-Melfa Service Areas, possibly as part of a larger Onancock Service Area.
3. Implementation of Comprehensive Plans. On-site sewage treatment requires large parcels of land to be divided for development. The future land use plans for the area recommend clustering growth, retaining open space and promoting agricultural uses. The land use plans will not be able to be implemented without the development of central sewerage systems. The Town of Onley is the commercial center of the Eastern Shore. The Town contains the only shopping centers on the Eastern Shore. Each of the major financial institutions on the Eastern Shore are located in the Town. The Town of Accomac contains the majority of the Accomack County government offices. The County has had to plan for expansion outside of the Town due to a lack of suitable soils. In addition, the Town cannot support needed commercial growth, including a restaurant, in its downtown due to poor soils.
4. The Onancock Facility. Due to the conditions described above, the facility may not be able to be developed into the proposed regional system.
5. Accomack County IDA. Sewage disposal service is currently provided to 12 commercial establishments from the IDA force main. However, the capacity limitations of the Onancock facility limit the IDA ability to serve existing and potential clients and affect the vitality of the Industrial Park. Furthermore, the IDA feel great discomfort in denying connection requests of LMI residents and would prefer that solutions be found to relieve its burden to provide service to residential and commercial users outside the Park.
6. Support for the Project. Each locality and agency that will be affected by the project has provided a letter of support for the project. Localities providing letters include the Towns of Melfa and Onancock. Melfa had considered being a part of the regional application, but had already committed to a housing preservation planning project. Accomack County also considered being a part of the regional application; the County however already has two VCDBG projects. Nevertheless, the County did provide a letter of support and a $15,000 cash contribution towards the project. The Accomack County IDA also provided a letter of support for the project. The Town of Onancock, while not in the project area, also provided a letter of support for the project. Each locality has committed resource personnel to direct the study ensuring that the final product will be a viable product which will be implemented.

5. Project Impact on Needs and Objectives:

Impact on Needs

The proposed project will clearly impact the need to develop a central sewerage facility, and eliminate substandard housing. The proposed project will provide the preliminary engineering report necessary to develop a sewage treatment facility. Through the study localities will identify the steps necessary to develop the facility.

The proposed project will clearly impact the ability of localities to implement Comprehensive Plan recommendations. As stated above, the Accomac, Onley, and Melfa Town Plans, the Accomack County Comprehensive Plan, the 1968, 1974 and 1978 water and sewer plans all recommend that sewage treatment service be provided to the project area. Development of a sewage treatment facility will enable localities to implement the specific comprehensive plan recommendations for clustering growth. Clustering growth will meet the need to provide services more efficiently, promote the retention of open space and lessen development pressure on agricultural areas.

Impact on Objectives

The proposed project will clearly impact the community development objectives described above by promoting a quality sewage treatment facilities in recognized areas of high density and concentrated development. The proposed project would meet the objective to promote the development of community facilities to improve the quality of life for Town residents.

6. Future Community Improvement Grant's Benefits to Low- and Moderate-Income Persons and Relationship of the Planning Grant Project to a National Community Development Objective (Benefit to LMI or Elimination/Prevention of Slums and Blight):

The proposed VCDBG Planning Grant project will be designed to lead to the preparation of a future Community Improvement Grant (CIG) application. If funded, this CIG will provide the funding necessary to ensure that LMI persons will be served by the project. It is anticipated that CIG funds would be used towards the development of the sewer facility in direct proportion to the number of LMI persons to be served. Accordingly, 100% of CIG funds will directly benefit LMI residents only.

The boundaries for the project includes the Towns of Accomac, Onley, Melfa. Areas within Accomack County to be included in the project area include Census Tract 9904 Block Group 3, Census Tract 9906 Block Group 1, Census Tract 9907 Block Group 1 (Lee Magisterial District Part) and Census Tract 9908 Block Group 1 (Lee Magisterial District). As stated above, within these boundaries are 7,187 persons of which 2949 (53%) are classified as LMI according to the 1980 U.S. Census. Based on the Census count, 53% of the project area's population is LMI. The proposed project meets the national objective that at least 51% of the direct project beneficiaries be LMI.

Part III

PLANNING GRANT BUDGET

Applicant: The Towns of Accomac and Onley

Project Title: The Central Accomack Preliminary Engineering Sewer System Study

Amount of VCDBG funds requested: $25,000

Activities	Personnel	Direct Charges	Indirect Charges	Total
Preliminary Engineering Study		$40,000.00		$40,000.00
Project Administration	$ 617.82	$ 17.00	$ 311.18	$ 1,000.00
Income and Household Survey	$ 3,355.66	$ 90.00	$ 1,554.34	$ 5,000.00
CIG Application	$ 1,010.11	$ 22.00	$ 467.89	$1,500.00
TOTALS	$ 5,037.59	$40,129.00	$ 2,333.41	$47,500.00

7. Derivation of costs. (Describe below or provide an Attachment detailing how costs were derived.)

In order to determine the cost for the proposed project area A-NPDC staff contacted Mr. Robert C. Arron, Environmental Engineer Senior, Regulatory Services, VSWCB Department of Water Resources. Based on the VSWCB staff experience, Mr. Arron stated that the project can be completed with the $47,500 budget.

The cost estimates for the survey are estimated through the A-NPDC experience of past surveys. A survey would be conducted of the 3,190 housing units in the project service area. Cost estimates for the proposed survey are provided below.

Project Administration.

Staff	Hours	Cost
Director of Planning	15.00	$1,484.82
Director Housing Services	4.00	611.25
Director of Admin.	4.00	1,257.84
Executive Director	10.00	1,039.20
Total Salaries		4,393.11
Indirect		2,034.89
Reproductions		72.00
Total		$1,000.00

Household Survey.

Staff	Hours	Cost
Executive Director	19.00	$ 513.19
Director of Planning	24.00	421.49
Director of Housing Services	19.00	331.93
Director of Economic Development	19.00	333.07
Director of Admin.	19.00	334.78
Director of H. Development	19.00	333.07
Regional Planner	19.00	275.50
Housing Specialist I	19.00	246.81
Housing Specialist II	19.00	225.91
Apartment Manager	19.00	154.85
Secretary	19.00	185.06
Total Salaries		$3,355.66
Indirect		1,554.34
Travel		90.00
Total		$5,000.00

VCDBG CIG Application.

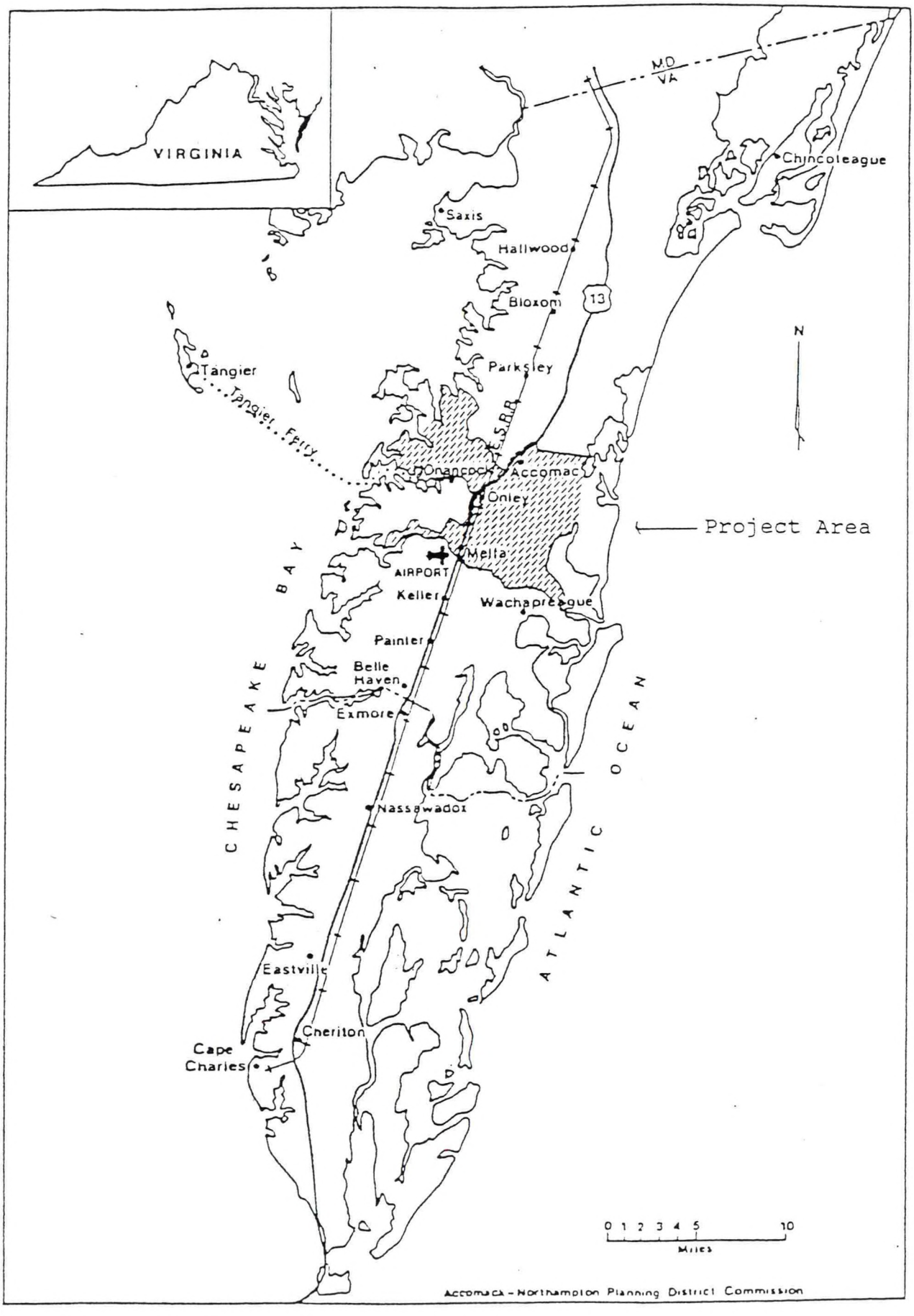
Staff	Hours	Costs
Director of Planning	35.00	$ 613.61
Director of Admin.	17.62	211.44
Secretary	9.74	$ 185.06
Total Salaries		$1,010.11
Indirect		467.88
Travel		90.00
Total		$1,500.00

INCLUDE AS AN ATTACHMENT(S) TO THIS PROPOSAL A MAP(S) OF THE PROJECT SERVICE AREA IN ACCORDANCE WITH THE INSTRUCTIONS ON PAGE A-9.

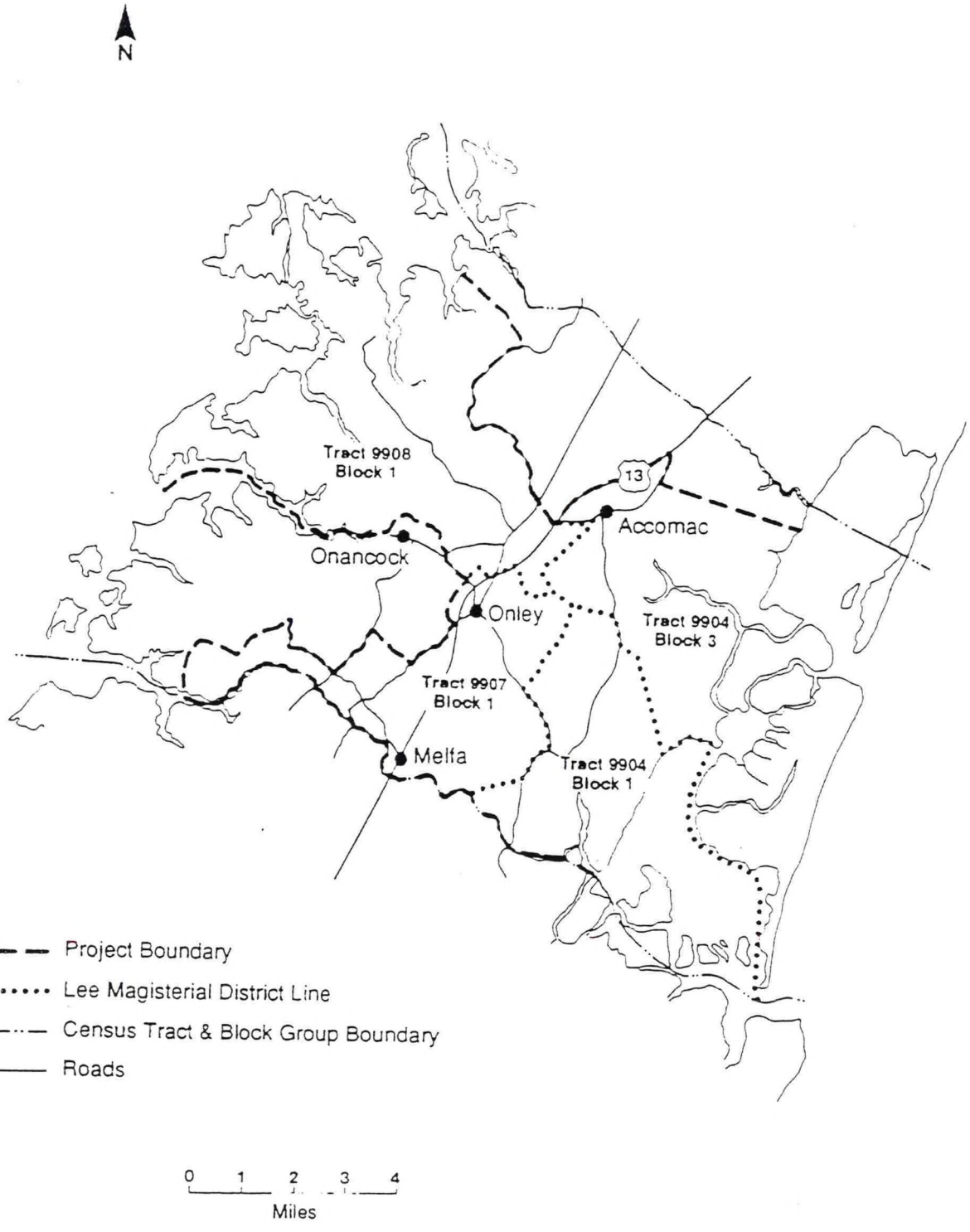
Appendix

Maps
Resolutions
Letters of Support

Map 1
Central Accomack Preliminary Sewer Feasibility Study
Project Area



Map 2
Project Service Area
Central Accomack Preliminary Engineering
Sewer System Study



WHEREAS, the Virginia Department of Housing and Community Development is Administering the Virginia Community Development Block Grant Program; and

WHEREAS, it is the objective of the Virginia Community Development Block Grant Program to assist local governments in improving the availability and adequacy of housing and community facilities; and

WHEREAS, the Towns of Onley and Accomac wish to participate in a preliminary engineering study for a sewer system; and

NOW, THEREFOR, BE IT RESOLVED, that the Towns of Onley and Accomac intend to apply to the Virginia Department of Housing and Community Development for Virginia Community Development Planning Grant funds in the amount of $25,000 to pay for said preliminary study with the express understanding that said Town shall not be required to expend any funds for said study and shall not be required to expend any funds and/or install any system regardless of the result of said study.

BE IT FURTHER RESOLVED that Honorable William J. Weaver, Mayor Town of Accomac is authorized by the Onley Town Council to sign and execute all necessary forms and documents required to submit the application for same.

Raymond D. Grubb
Honorable Raymond D. Grubb
Mayor Town of Onley

Barbara C. Wessells
Witness

Members Present

Vote: Frances Taylor
Edward F. Gardner
George C. Cutler, Jr.
Charles M. Johnson
Howard W. Killmon

RESOLUTION

WHEREAS, the Virginia Department of Housing and Community Development is Administering the Virginia Community Development Block Grant Program; and

WHEREAS, it is the objective of the Virginia Community Development Block Grant Program to assist local governments in improving the availability and adequacy of housing and community facilities; and

WHEREAS, the Towns of Onley and Accomac wish to participate in a preliminary engineering study for a sewer system; and

NOW, THEREFORE, BE IT RESOLVED, that the Towns of Onley and Accomac intend to apply to the Virginia Department of Housing and Community Development for Virginia Community Development Planning Grant funds in the amount of $25,000; and

BE IT FURTHER RESOLVED that Honorable William J. Weaver, Mayor Town of Accomac is authorized to sign and execute all necessary forms and documents required to submit the application.

Honorable William J. Weaver
Mayor Town of Accomac
Adopted: June 19, 1991

Members Present: Grace K. Coard, Madeline P. Holland, Bettie D. Bunting, Ernest Gross, J. French Coleburn, Jerry F. Lilliston

Vote:

Yes	Coard, Holland, Bunting, Gross, Coleburn, Lilliston
No	None
Abstention	None

COUNTY OF ACCOMACK

BOARD OF SUPERVISORS

June 20, 1991

The Honorable William J. Weaver
Mayor, Town of Accomac
The Honorable Raymond O. Grubb
Mayor, Town of Onley
C/O Accomack-Northampton
Planning District Commission
Post Office Box 417
Accomac, Virginia 23301

Dear Mayor Weaver and Mayor Grubb:

Accomack County understands that the Towns of Onley and Accomac are preparing a Virginia Department of Housing and Community Development Planning Grant application for a preliminary engineering study for a sewer system. The County also understands that its support for this study has been requested.

This letter is to indicate support from Accomack County for the Community Development Planning Grant application. The County will provide a cash contribution to the project of $15,000. The County will also provide staff support at meetings for the project and review and comment on the reports from the project.

The County of Accomack appreciates the opportunity to participate in the Virginia Community Development Block Grant Planning Grant. If you have any questions please contact my self or Arthur K. Fisher, County Administrator.

Sincerely,

William D. Sawyer per A.K.F.

William D. Sawyer, Chairman
Accomack County Board of Supervisors

WDS:ynw

THE INDUSTRIAL DEVELOPMENT AUTHORITY OF THE COUNTY OF ACCOMACK, VIRGINIA

ON VIRGINIA'S EASTERN SHORE

POST OFFICE BOX 388
COUNTY ADMINISTRATION BUILDING

ACCOMAC, VIRGINIA 23301
TELEPHONE (804) 787-4289

June 21, 1991

The Honorable William J. Weaver
Mayor, Town of Accomac
The Honorable Raymond O. Grubb
Mayor, Town of Onley
C/O Accomack-Northampton
Planning District Commission
Post Office Box 417
Accomac, Virginia 23301

Dear Mayor Weaver and Mayor Grubb:

The Accomack County Industrial Development Authority (IDA) understands that the Towns of Onley and Accomac are preparing a Virginia Department of Housing and Community Development Planning Grant application for a preliminary engineering study for a sewer system.

This letter is to indicate support from Accomack County IDA for the Community Development Planning Grant application. The Accomack County IDA will review and comment on the reports from the project.

The Accomack County IDA appreciates the opportunity to participate in the Virginia Community Development Block Grant Planning Grant. If you have any questions please contact myself or Arthur K. Fisher, County Administrator.

Sincerely,

D. Brooke Layton

D. Brooke Layton, Chairman
Accomack County Industrial
Development Authority

DBL:ynw

STARR S. MASON, Mayor

Town of Onancock

Municipal Building

17 North St.

Onancock, Virginia 23417

(804) 787-3363

Council
Ben F. Askew
Ben Byrd
E. Dean Edwards

Council
Reed Ennis
Ivan W. Gibb
Joan Recor

June 12, 1991

The Honorable William J. Weaver
Mayor Town of Accomac

Honorable Raymond D. Grubb
Mayor Town of Onley

c/o Accomack-Northampton
Planning District Commission
Post Office Box 417
Accomac, Va. 23301

Dear Mayor Weaver and Mayor Grubb:

The Town of Onancock understands that the Towns of Onley and Accomac are preparing a Virginia Department of Housing and Community Development Planning Grant application for a preliminary engineering study for a sewer system. The Town also understands that its support for this study has been requested.

This letter is to indicate support from the Town of Onancock for the Community Development Planning Grant application. The Town will provide staff support at meetings for the project and will review and comment on any reports from the project.

The Town of Onancock appreciates the opportunity to participate in the Community Development Planning Grant. If you have any questions please contact myself or Mr. Bob Martin, Onancock Town Manager.

Sincerely,

Starr S. Mason
Mayor
Town of Onancock

SSM/sd

TOWN OF MELFA, INC.

P. O. BOX B

MELFA, VIRGINIA 23410

Honorable William J. Weaver
Mayor Town of Accomac
Honorable Raymond D. Grubb
Mayor Town of Onley
C/O Accomack-Northampton
Planning District Commission
P.O. 417
Accomac, Va 23301

June 17, 1991

Dear Mayor Weaver and Mayor Grubb:

The Town of Melfa understands that the Towns of Onley and Accomac are preparing a Virginia Department of Housing and Community Development Planning Grant application for a preliminary engineering study for a sewer system. The Town also understands that its support for this study has been requested.

This letter is to indicate support from the Town of Melfa for the Community Development Planning Grant application. The Town will provide staff support at meetings for the project and will review and comment on any reports from the project.

The Town of Melfa appreciates the opportunity to participate in the Community Development Planning Grant. If you have any questions please contact me.

Sincerely,

Franklin Kilmon
Mayor, Town of Melfa

ACCOMACK-NORTHAMPTON PLANNING DISTRICT COMMISSION
P.O. BOX 417
ACCOMAC, VIRGINIA 23301
(804) 787-2936

Honorable William J. Weaver
Mayor Town of Accomac

Honorable Raymond D. Grubb
Mayor Town of Onley

C/O Accomack-Northampton
Planning District Commission
P.O. 417
Accomac, Va 23301

July 12, 1991

Dear Mayor Weaver and Mayor Grubb:

This letter is to indicate the support of the Accomack-Northampton Planning District Commission (A-NPDC) for the Central Accomack Preliminary Sewer Feasibility Study Virginia Community Development Block Grant Planning Grant application.

In support of the project, the A-NPDC is committing $7,500. These funds will be used towards the staff costs in administration of the project, preparation of the necessary income and household survey and for the preparation of the FY 1993 VCDBG Community Improvement Grant Application.

The A-NPDC appreciates the opportunity to participate in the Virginia Community Development Block Grant Planning Grant. If you have any questions, please contact me.

Sincerely,

Paul F. Berge
Executive Director

ACCOMACK-NORTHAMPTON HOUSING
AND REDEVELOPMENT CORPORATION

June 19, 1991

Ms. Mary Glover
P.O. Box 15
Melfa, VA 23410

Dear Ms. Glover:

Yesterday I presented a request for residential sewerage hook up to the Accomack Industrial Development Authority on your behalf. I am sorry to inform you that the Authority voted unanimously to continue its policy of not allowing residential hook ups to their line.

Because I have not been able to identify any other method for providing sewerage disposal for your home, I will not be able to offer you assistance through the Indoor Plumbing Program at this time.

Should the situation change, and you identify a nearby property owner who will allow you to hook up to their system, or should the Eastern Shore Health District approve a "pump and haul" permit which will allow you to install complete indoor facilities, please contact me to determine the availability of Indoor Plumbing Funds at that time.

If you have any questions, please do not hesitate to call.

Sincerely,

Kathy O'Keefe

Kathleen O'Keefe
Director of Housing Services

BOX 387 ACCOMAC, VIRGINIA 23301

ACCOMACK PHONE (804) 787-2800 NORTHAMPTON PHONE (804) 678-7755

BY-LAWS

OF

COEBURN-NORTON-WISE REGIONAL WASTE WATER TREATMENT AUTHORITY

BY-LAW I.

NAME

The name is Coeburn-Norton-Wise Regional Waste Water Treatment Authority.

BY-LAW II.

ORGANIZATION

The Authority is a constituted political subdivision of the Commonwealth of Virginia with public and corporate powers under the Virginia "Water and Sewer Authorities Act" and is created pursuant to §15.1-1241 of the Code of Virginia and activated by the City Council of the City of Norton, Virginia, the Town Council of the Town of Wise, Virginia and the Town Council of the Town of Coeburn, Virginia by ordinance dated May 12, 1987.

BY-LAW III.

PRINCIPAL OFFICE

The principal office of the Authority shall be the municipal building, City of Norton, Virginia or at any other location as may be designated by the Authority.

BY-LAW IV.

COMMISSIONERS

The powers of the Authority shall be vested in nine

members which shall not be less than one member for each participating political subdivision. Three members shall be selected by the Town Council of the Town of Wise, Virginia; three members shall be selected by the City Council of the City of Norton, Virginia, and three members shall be selected by the Town Council of the Town of Coeburn, Virginia. After initial appointments to the Authority, members shall be appointed for a term of 4 years.

BY-LAW V.

QUORUM

A majority of the members of the Authority shall constitute a quorum, and the vote of a majority of members shall be necessary for any action taken by the Authority.

BY-LAW VI.

OFFICERS

a. The Authority shall elect from its members a Chairman, Vice-Chairman and Secretary.

b. The Chairman shall be the chief officer of the organization and shall be present at the meeting of the Authority; he shall communicate to the Authority such matters and make such suggestions as may, in his opinion, tend to promote the welfare and increase the usefulness of the Authority and shall perform such other duties as are incident and necessary to the office.

c. The Vice-Chairman shall perform all the duties of the Chairman during the absence of the Chairman.

d. The Secretary shall give notice and attend all meetings

of the Authority and make provisions for the keeping of a record of the proceedings; the Secretary shall perform any other functions which may be designated by the Authority or the Code of Virginia.

BY-LAW VII.

EXECUTIVE DIRECTOR

The Authority shall employ an Executive Director to serve at the will and pleasure of the Authority. His functions shall be as follows:

PRIMARY FUNCTION: Performs professional work in the financial management, planning, design, inspection and operation of the Regional Waste Water Treatment Authority, under the direction of the Authority's appointed Board of Directors.

JOB DUTIES AND RESPONSIBILITIES: This job description lists only the usual job duties normally assigned to the incumbent employee, but does not restrict the performance of other duties as may be assigned by the Board.

1. Supervise the engineering and mapping.

2. Review construction plans and submittals.

3. Propose and implement authority utility modifications and repairs.

4. Trouble-shoot utility and other related problems.

5. Act a liaison between Authority and contractors, railroads, highways and state/federal regulatory agencies.

6. Perform inspections on in-house and contracted sewer repairs.

7. Prepare weekly work schedules.

8. Direct operation and maintenance of the sewage treatment plant and associated transmission conduits.

9. Budget preparation for the Authority.

10. Monitor and order Authority purchases.

11. Prepare financial reports.

12. Receive and address customer complaints.

13. Maintain appropriate inventory of supplies necessary for the day to day operation of the waste water treatment plant.

14. Complete the appropriate monthly reports to the State and local health departments.

15. Coordinate and plan the training and development of all employees of the authority.

16. Manage and direct the day to day problems of the operations of the Authority and its' employees.

17. Assure proper training of all operators and that adequate staffing is available.

18. Monitoring and submittal of reports for funding agencies and application for funds.

BY-LAW VIII.

The Authority may, from the funds of the Authority, pay each member a fee not exceeding _____ dollars per month for services as a member in addition to the expenses allowed by law.

BY-LAW IX.

For such legal services as it may require, the Authority may employ its own counsel.

BY-LAW X.

DELEGATION OF AUTHORITY

The Authority may delegate one or more agents or employees

such powers or duties as it may deem proper.

BY-LAW XI.

REMOVAL OF MEMBERS

For inefficiency or neglect of duty or misconduct in office, a member of the Authority may be removed by the Authority by a majority vote of the Authority as provided by §_____, of the Code of Virginia.

BY-LAW XII.

There shall be a monthly meeting of the Authority during each month of the year, unless otherwise ordered by the Authority, and such meeting shall be held on the first Wednesday of each month unless otherwise ordered by the Authority. An annual organizational meeting shall be held in June of each year to elect officers and an Executive Director.

Special meetings of the Authority may be called at any time by the Chairman or Executive Director, or in the absence of the Chairman, by the Vice-Chairman or Executive Director, at the written request of a majority of the commission members. Five days notice of the special meeting must be given to the members of the Authority, and the notice must state the objective of the meeting.

BY-LAW XIII.

GENERAL POWERS OF THE AUTHORITY

The Authority shall have all of the powers, duties and responsibilities of the Virginia Water and Sewer Authorities Act, Title 15.1, Chapter 28, of the Code of Virginia, and

specifically, but not limited to §15.1-1250 of the Code of Virginia.

BY-LAW XIV.

AMENDMENTS

These By-Laws may be amended, repealed or altered, in whole or in part, by a majority vote of the members of the Authority at any duly organized meeting of the Authority; however, at no time shall any By-Laws be adopted which are in conflict with Title 15.1, Chapter 28 of the Code of Virginia cited as the Virginia Water and Sewer Authorities Act.

BY-LAW XV.

The Authority shall not make any contract for the construction of any projects not authorized or approved by the respective city council of the City of Norton, Virginia, Town Council of the Town of Wise, Virginia and the Town Council of the Town of Coeburn, Virginia.

BY-LAW XVI.

COMMITTEES

The Authority may establish from its members standing committees and special committees as it may, from time to time, deem necessary.

ADOPTED this 7th day of October, 1987.

Danny C. Linard
CHAIRMAN

ATTEST:

Sam I Lee
SECRETARY

A JOINT AMENDED ORDINANCE OF THE CITY COUNCIL OF THE CITY OF NORTON, VIRGINIA, THE TOWN COUNCIL OF THE TOWN OF THE TOWN OF WISE, VIRGINIA AND THE TOWN COUNCIL OF THE TOWN OF COEBURN, VIRGINIA CREATING A SEWER DISPOSAL AUTHORITY PURSUANT TO SECTION 15.1-1241 OF THE CODE OF VIRGINIA TO BE KNOWN AS THE COEBURN-NORTON-WISE REGIONAL WASTE WATER TREATMENT AUTHORITY, SETTING FORTH THE ARTICLES OF INCORPORATION OF THE SAME TO BE FILED WITH THE STATE CORPORATION COMMISSION, PRESCRIBING THE MEMBERS OF THE AUTHORITY AND THE POWERS AND DUTIES OF THE AUTHORITY IN THE ARTICLES OF INCORPORATION

WHEREAS, Section 15.1-1241 of the Code of Virginia authorizes the governing body of a political subdivision by concurrent ordinance to create a Sewage Disposal Authority, which shall be a public body politic and corporate, and the City Council of the City of Norton, Virginia, the Town Council of the Town of Coeburn, Virginia, and the Town Council of the Town of Wise, Virginia desire to create such an authority; and,

WHEREAS, the City of Norton, Virginia was created by Chapter 565 of the Acts of General Assembly of Virginia of 1954; the Town of Wise, Virginia was created by Chapter 462 of the Acts of the General Assembly of 1975, and the Town of Coeburn, Virginia was created by Chapter 169 of the Acts of General Assembly of 1979, all municipal corporations.

WHEREAS, the governing body of the City Council of the City of Norton, Virginia, the governing body of the Town of Wise, Virginia, and the governing body of the Town of Coeburn, Virginia each caused to be published one time in The Coalfield Progress, a newspaper of general circulation in Wise County and in the City of Norton, Virginia, a copy of this ordinance, together with a notice on behalf of the City Council of the City of Norton, Virginia that on the 12th day of May, 1987 at 7:30 P.M. at the City Hall in the City of Norton, Virginia; the Town of Wise, Virginia notice stating that on the 11th day of May, 1987 at the Town Hall in the Town of Wise, Virginia at 7:00 P.M., and the Town of Coeburn, Virginia notice stating that on the 11th day of May, 1987 at the Town Hall in the Town of Coeburn, Virginia at 6:30 P.M., public hearing swill be held on said ordinance, which said notice contained a copy of this ordinance;

WHEREAS, the City of Norton, Virginia and the Town of Wise, Virginia, both municipal corporations, previously created a sewage disposal authority under Section 15.1-214 of the Code of Virginia designated the Norton-Wise Regional Waste Water Treatment Authority, which Authority was not organized into an official body; and,

283784

WHEREAS, Thereafter the Town of Coeburn, Virginia made application to become a part of the Authority and the governing bodies of the

three municipalities by ordinance determined to amend the Articles of Incorporation to include the Town of Coeburn, Virginia and to change the name to Coeburn-Norton-Wise Regional Waste Water Treatment Authority.

WHEREAS, the parties therefore desire to restate the Articles of Incorporation as hereinafter set forth.

BE IT, THEREFORE, ORDAINED AND ENACTED that there is hereby created a Sewer Disposal Authority to be known as Coeburn-Norton-Wise Regional Waste Water Treatment Authority, which shall be a public body politic and corporate; that the Articles of Incorporation of the Coeburn-Norton-Wise Regional Waste Water Treatment Authority is as follows:

ARTICLES OF INCORPORATION

OF

COEBURN-NORTON-WISE REGIONAL WASTE WATER TREATMENT AUTHORITY

FIRST:

The name of the Authority is COEBURN-NORTON-WISE WASTE WATER TREATMENT AUTHORITY, and its principal office is MUNICIPAL BUILDING, CITY OF NORTON, NORTON, VIRGINIA 24273.

SECOND

The names and addresses of each incorporated political subdivision are as follows:

City of Norton, Virginia
Municipal Building
P. O. Box 618
Norton, Virginia 24273

Town of Coeburn, Virginia
P. O. Box 370
Coeburn, Virginia 24230

Town of Wise, Virginia
200 Spring Street
P. O. Box 1100
Wise, Virginia 24293

The powers of the Authority shall be exercised by nine members which shall not be less than one member for each participating political subdivision. Three members shall be selected by the Town Council of

the Town of Wise, Virginia; three members shall be selected by the City Council of the City of Norton, Virginia, and three members shall be selected by the Town Council of the Town of Coeburn, Virginia. The hereinafter members are appointed for the term set forth after their name, and thereafter all members shall be appointed for a term of four years:

NAME:	ADDRESS:	TERM OF OFFICE:
Ron McCall	451 Murphy Street, Norton, Va. 24273	Expires 5-15-87
Lewey K. Lee	P.O. Box 1122, Wise, Va. 24293	Expires 5-15-87
Robert Hale	P. O. Box 696, Coeburn, Va. 24239	Expires 5-15-87
Charlie Daniels	P. O. Box 188, Norton, Va. 24273	Expires 5-15-88
D. L. Boggs	P. O. Box 56, Wise, Va. 24293	Expires 5-15-88
Eugene Hillman	P. O. Box 83, Coeburn, Va. 24230	Expires 5-15-88
William Mays	P. O. Box 295, Norton, Va. 24273	Expires 5-15-89
Gary Smith	P. O. Box 821, Wise, Va. 24293	Expires 5-15-89
Danny Greear	P. O. Box 218, Coeburn, Va. 24230	Expires 5-15-89

A majority of the members of the Authority shall constitute a quorum, and the vote of a majority of members shall be necessary for any action taken by the Authority. Whenever it cannot resolve because of a tie vote or a deadlock caused by lack of votes of a majority of members, any resolution, policy, question or matter after a period of sixty days from the time such resolution, policy, question or matter is first voted upon, any member of the Authority shall then have the right to apply to the Circuit Court of Wise County, Virginia for the appointment of a tie-breaker as provided by Section 15.1-1249 of the Code of Virginia.

THIRD

The initial purpose or purposes for which the Authority is created is a specific project to construct, operate and maintain a sewage disposal system or waste water treatment plant for the Coeburn-Norton-Wise Waste Water Treatment Authority and the incidental purposes to accomplishing these initial purpose or purposes or to exercise all powers and duties authorized and empowered by the "Virginia Water and Sewer Authorities Act", being Title 15.1, Chapter 28, of the Code of Virginia, and such further specific projects as the governing bodies of the Town of Coeburn, Town of City and City of Norton, or other participating political subdivisions who may be admitted under 15.1-1248 of the Code of Virginia, may from time to time by subsequent ordinance or resolution, after public hearing directed to the Authority. No other project shall be undertaken by the Authority than those specified.

The Town Council of the Town of Coeburn, Virginia, the Town Council of the Town of Wise, Virginia, and the City Council of the City of Norton, Virginia, have by ordinance which set forth this Articles of Incorporation, find pursuant to Section 15.1-1242(b) of the Code of Virginia that inclusion of preliminary estimates of capital cost, proposals for any specific project or projects to be undertaken by the Authority and preliminary estimates of initial rates for services of such project as certified by responsible engineers is impractical.

FOURTH

The Coeburn-Nortn-Wise Regional Waste Water Treatment Authority shall be deemed to be an instrumentality exercising public and essential governmental functions to provide for the public health and welfare.

INCORPORATORS:

CITY OF NORTON, VIRGINIA

Cliff Daniels

CLIFF DANIELS, MAYOR AND CHAIRMAN
OF CITY COUNCIL.

ATTEST:

CLERK

TOWN OF WISE, VIRGINIA

GLENN CRAFT, MAYOR AND CHAIRMAN
OF TOWN COUNCIL.

ATTEST:

Mary B Stiffey
CLERK

TOWN OF COEBURN, VIRGINIA

Harold Ringley Dds

DR. HAROLD RINGLEY, MAYOR AND
CHAIRMAN OF TOWN COUNCIL.

ATTEST:

Geneva K. Love
CLERK

DATED THE ____ DAY OF _____, 1987

BE IT FURTHER ORDAINED AND ENACTED that the Town Council of the Town of Coeburn, Virginia, the City Council of the City of Norton, Virginia, and the Town Council of the Town of Wise, Virginia hereby finds that the inclusion of preliminary estimates of capital cost, proposals for any specific project or projects to be undertaken by the Authority, and preliminary estimates of initial rates for service of such project as certified by a responsible engineer is impractical.

BE IT FURTHER ORDAINED AND ENACTED that the Town Council of the Town of Coeburn, Virginia, the City Council of the City of Norton, Virginia, and the Town Council of the Town of Wise, Virginia, pursuant to Section 15.1-1244 of the Code of Virginia hereby exercise their discretion not to call a referendum on the question of adopting or approving this ordinance.

BE IT FURTHER ORDAINED AND ENACTED that the Mayor of the Town of Coeburn, Virginia, the Mayor of the City of Norton, Virginia, and the Mayor of the Town of Wise, Virginia be, and they are hereby authorized and directed to execute the Articles of Incorporation set forth above, and the Town Attorney of the Town of Coeburn, Virginia, the Town Attorney of the Town of Wise, Virginia, and the City Attorney for the City of Norton, Virginia is directed to cause the same to be filed with the State Corporation Commission in Richmond, Virginia.

All ordinances in conflict herewith are repealed.

ADOPTED this 12th day of May, 1987.

CITY NORTON, VIRGINIA

BY: Cliff Daniels

CLIFF DANIELS, MAYOR AND CHAIRMAN OF CITY COUNCIL.

ATTEST:

Jo Morton

CLERK

ADOPTED this 19th day of May, 1987.

TOWN OF WISE, VIRGINIA

BY: _____

GLENN CRAFT, MAYOR AND CHAIRMAN OF TOWN COUNCIL

ATTEST:

Mayo B Stafford
CLERK

ADOPTED this 19th day of May, 1987.

TOWN OF COEBURN, VIRGINIA

BY: Harold L. Ringley Des
DR. HAROLD RINGLEY, MAYOR AND
CHAIRMAN OF TOWN COUNCIL.

ATTEST:

Geneva K Love
CLERK

APPROVED AS TO FORM AND CONTENT:

H D Asbury
Kenneth P. ASbury
Town Attorney for the Town of Wise

H D Asbury
Kenneth P. Asbury
City Attorney for the CIty of Norton

H D Asbury
Kenneth P. Asbury
Town Attorney for the Town of Coeburn

PASSED ON SECOND READING ON THE 19th DAY OF May, 1987.

RESOLUTION OF THE TOWN COUNCIL OF THE TOWN OF COEBURN, VIRGINIA, AUTHORIZING THE TOWN MANAGER TO MAKE APPLICATION ON BEHALF OF THE TOWN COUNCIL OF THE TOWN OF COEBURN, VIRGINIA TO JOIN THE NORTON-WISE REGIONAL WASTE WATER TREATMENT AUTHORITY

WHEREAS, Section 15.1-1241 of the Code of Virginia authorizes the creation of a sewer disposal authority, and the City of Norton and the Town of Wise, Virginia have previously created the Norton-Wise Regional Waste Water Treatment Authority and the Town of Coeburn, Virginia desires to make application to become a member of the Authority, and the Town of Wise and the City of Norton have tentatively agreed to accept them into the same, and public hearings are necessary to adopt an ordinance jointly with the Towns of Coeburn and Wise and the City of Norton to be filed with the State Corporation Commission on behalf of all three municipalities admitting the Town of Coeburn as a member of the Norton-Wise Regional Waste Water Treatment Authority;

NOW, THEREFORE, BE IT RESOLVED that the Town Manager be, and he is hereby authorized and directed to make application to the Town of Wise and the City of Norton for admission to become a member of the Norton-Wise Regional Waste Water Treatment Authority;

BE IT FURTHER RESOLVED, that a public hearing shall be held on an ordinance to become a member of the same on the ___ day of March, 1987, and that due advertisement of the same for a public hearing on the advisability of becoming a part of the Authority shall be held on the ___ day of March, 1987 at 6:30 A.M. at the Town Hall, and that the Town Attorney in drawing the said ordinance shall place the following persons in the said ordinance to serve for the following terms:

NAME:	TERM OF OFFICE:
Robert Hale	May 15, 1988
Eugene Hillman	May 15, 1989
Danny Greear	May 15, 1990

UPON MOTION DULY MADE AND CARRIED, the above resoltuion was adopted by a voice vote:

Voting "Aye"	-	Mr. Jones Mr. Salyers Mr. Lambert Mr. Hale
Voting "Nay"	-	None
Absent	-	Mr. Ringley

ADOPTED on this February 9, 1987.

TOWN OF COEBURN, VIRGINIA

Donald H. Sayers, Sr.
VICE-MAYOR

ATTEST:

Sherry B McConnell
CLERK

COMMONWEALTH OF VIRGINIA

GEORGE W. BRYANT, JR.
CLERK OF THE COMMISSION
BOX 1197
RICHMOND, VIRGINIA 23209

STATE CORPORATION COMMISSION

September 18, 1987

Kenneth P. Asbury
P. O. Box 336
Wise, VA 24293

Re: Coeburn-Norton-Wise Regional Waste Water Treatment Authority

Dear Mr. Asbury:

A Certificate of Amendment and Restatement of Coeburn-Norton-Wise Regional Waste Water Treatment Authority was issued and admitted to record on September 18, 1987.

Very truly yours,

George W. Bryant, Jr.

George W. Bryant, Jr.
Clerk of the Commission

GWBjr:jam

KENNETH P. ASBURY
ATTORNEY AT LAW
ASBURY BUILDING
P. O. BOX 336
WISE, VIRGINIA 24293

AREA CODE 703
328-5286
328-6620

September 24, 1987

Mr. Eugene Brooks, Executive Director
Coeburn-Norton-Wise Regional Waste Water Treatment Authority
Blondell Avenue
Appalachia, Virginia 24216

Dear Gene:

I enclose you herewith a copy of the final Articles of Incorporation for the Waste Water Treatment Authority.

At the request of the State Corporation Commission, and another hearing was not required by them, they desired preamble to read that this was a restatement and amendment of the original Articles of Incorporation.

I am enclosing to you and to each of the municipalities involved the Amended Articles of Incorporation.

The only other change was that they desired the name after each of the respective mayors to show that he was chairman and presiding officer of the Authority.

I further enclose you herewith a letter from Mr. George W. Bryant, Jr., Clerk of the Commission, showing the filing of the same. This was after the amendments were made as requested.

An actual charter is not issued on sewer authorities, but the letter is equivalent, and to use the Commission's words "tantamount to an authority". Therefore, this original letter should be preserved in the minute books for future bond issues, et cetera. I am also sending a copy of the letter to the respective political subdivisions and keeping one copy in this office.

Yours very truly,

Kenneth P. Asbury

KPA:bhg
Enclosures

CC: Mr. Charles R. Brown, City Manager
City of Norton
Box 618
Norton, Virginia 24273

Town of Wise
Box 1100
Wise, Virginia 24293

Mr. Terry Gibson, Town Manager
Town of Coeburn
Box 370
Coeburn, Virginia 24230

town of WISE virginia

P.O. BOX 1100 • WISE, VIRGINIA 24293 • (703)328-6013

July 28, 1987

TO: Sewer Authority Members
FROM: Sim Ewing, Town Manager
RE: Gary Smith

During our regularly scheduled Wise Town Council Meeting, Gary Smith submitted his resignation from the Coeburn-Norton-Wise Regional Wastewater Treatment Authority, for personal reasons. This resignation will become effective August 6, 1987. To replace him, Glenn Craft has been appointed to fill his seat on the Authority.

MEMORANDUM OF UNDERSTANDING

THE TOWN OF COEBURN'S ENTRANCE INTO THE NORTON-WISE REGIONAL WASTE WATER TREATMENT AUTHORITY

1. The Town of Coeburn agrees to join in the Regional Waste Water Treatment Authority as an equal partner. Coeburn has committed to spend up to a maximum of 1.25 million capital dollars on the entire waste water treatment facility.

2. Should the Authority be awarded any grant money for the construction of any part of the waste water treatment facility, Coeburn's capital contribution to the construction of the facility will be decreased by the following formula:

$$\frac{\$1.25 \text{ million}}{\text{Plant Only Total Expansion Costs}} \times \frac{\text{Coeburn Reserved Flow}}{\text{3.5 MGD Total Capacity}} = \text{Portion of Grant}$$

3. The Town of Coeburn residents will not be charged in the fee structure for any costs associated with the debt retirement or operation and maintenance expenses associated with the transmission line which feeds the regional facility from Norton and Wise.

4. The municipalities will each provide to the Authority their existing waste water treatment facilities as follows: the Town of Coeburn will provide the Coeburn Waste Water Treatment Plant, the City of Norton will provide its Ramsey Waste Water Treatment Plant and the Town of Wise will provide its Bear Creek Waste Water Treatment Plant. The Authority will not be charged by any of the municipalities for the transfer of land and equipment.

5. The basic rate structure for the users is agreed in principal as follows:

A. O + M Costs, Plant: Shared on a percentage of metered capacity between all users.
B. Payback of Plant Capital (over and above initial Coeburn commitment): Shared by Norton and Wise users only.
C. O + M Costs, Line: Shared by Norton and Wise users only.
D. Payback of Line Capital: Shared by Norton and Wise users only.

Note: Items B, C and D would include Wise County Residents if Wise County decides to participate in the Regional Waste Water Treatment Authority.

Harold Ringley, Mayor
Town of Coeburn

Glenn Craft, Mayor
Town of Wise

Cliff Daniels, Mayor
City of Norton

CITY OF NORTON
618 VIRGINIA AVENUE
P.O. BOX 618
NORTON, VIRGINIA 24273-0618

OFFICE OF
JO NOBLER
TREASURER

Jan. 15, 1988

(Excerpts from Council Meeting April 21, 1987)

The Mayor announced the floor was open for nominations to the Regional Sewer Authority.

William Mays nominated Ron McCall for reappointment. On motion by Jack Wallace, seconded by Robert Raines, and carried by unanimous vote, Council moved that the nominations be closed.

The Mayor declared Ron McCall reappointed to the Regional Sewer Authority with said term expiring May 15, 1990.

Clerk of Council

Minutes of the Organizational Meeting of the Wise - Norton - Coeburn Sewer Authority, held in Cantrell Hall at Clinch Valley College June 18, 1987 7:30 P.M.

Members present:
Gary Smith
Lewey Lee
Charlie Daniels
William Mays
Ron McCall
Danny Greear
Gene Hillman
Robert Hale

Members absent:
D. L. Boggs

The meeting began with the election of officers which were as follows:
Chairman - Danny Greear
Vice-Chairman - William Mays
Secretary - Gary Smith

It was decided that the regular meeting date would be the first Wednesday in each month at 7:30 P.M., at each participating Town's Council room, beginning with Coeburn then to Norton ending with Wise.

The employing of an Executive Director for the Authority was discussed with the deadline being 8/8/87. The Authority appointed an interview committee which would be in charge of meeting with their town manager to discuss advertising the position in their area and working up some guidelines and requriements needed for the position. The following were elected for their area:
Gary Smith - Wise
Charlie Daniels - Norton
Gene Hillman - Coeburn

A bylaws committee was elected consisting of Ron McCall, Robert Hale, and Lewey Lee, who was appointed chairman of the committee.

Lewey Lee made motion to hire Town of Wise Attorney, Kenneth Asbury, to be legal counselor for the Authority. Ron McCall seconded the motion. Motion carried 8-0.

Danny Greear opened the floor for discussion of the proposed project - Wise - Norton - Coeburn Sewer Interceptor. Gary Smith was asked to give a brief summary of what he knew concerning this matter. Smith stated that the project began approximately a year and a half ago as a Regional - County wide system and it was narrowed down to a smaller system beginning with Norton and Wise and then bringing Coeburn into the system. The cost was compared of putting in a line between Norton and Wise and then getting it on down to Coeburn, verses, Wise and Norton going together and putting in a sewer plant and the cost came out to be about the same as putting the three towns together with one plant that the whole area can grow from. It was found to be more economical to put the plant in Coeburn rather than Norton or Wise due to the limits that the State would inhibit and also Coeburn has a better water supply than Wise or Norton. Population was also a factor. There would be around 4,000 connections in the Wise - Norton - Coeburn areas which would make the operating costs be spread out. The council then decided to go on and form the Authority and continue with the possibility of a three-way interceptor. Gary stated that the Authority needs to move quickly and have Dewberry & Davis come and discuss the project as soon as possible. He also stated that a big advantage of the three towns going together was that it would open up a chance for growth in each area and it was important to look into what the interceptor was going to mean in the years to come.

The group stated that they need some idea of the pipeline costs to the consumers in each area and have Dewberry & Davis to come and answer several questions such as this and update the costs, explaining each area of expense.

Lewey Lee made a motion to have Dewberry & Davis at the next meeting which will be 7/1/87 at Coeburn Town Hall, Council Chambers, Gary Smith seconded the motion. Motion carried 8-0. Lee also suggested to have any decisions reviewed by Attorney, Kenneth Asbury.

Meeting adjourned 8:40 P.M.

Danny C Greear
Chairman

SECRETARY OF AUTHORITY

Minutes
Wise - Norton - Coeburn Sewer Authority
July 1, 1987

The Wise-Norton-Coeburn Sewer Authority held its regular monthly meeting Wednesday, July 1, 1987, in the Coeburn Town Hall. Members present were: Gary Smith, Lewey Lee, D. L. Boggs, William Mays, Ron McCall, Danny Greear, Gene Hillman, and Robert Hale. Charlie Daniels was absent. Also present were Lee Maddox, Bill Edwards, and Bob Lane from the engineering firm of Dewberry & Davis, the managers of the three localities and members of the press.

William Mays called the meeting to order. Lewey Lee moved to approve the minutes of the last meeting. Robert Hale seconded and vote all ayes.

Bob Lane gave a chronology of events of inception of the regional sewer system up to this point as per his handout to members. He advised the authority that due to state regulations the proposed STP must reduce nitrogen levels of the waste before it is allowed to enter the stream which will result in some additional costs. He elaborated on the regional system verses separate plants and pointed out savings of operation and maintenance for many years to come. He discussed with the authority the cost of not only the plant but the main transmission line as well. He informed the authority he felt confident of projected costs figures giving or taking 8 to 10%.

A long discussion was held concerning a conventional plant verses an innovative plant which the state refers to as "experimental". Bill Edwards, an associate of Dewberry & Davis stated the innovative methology has been tried and proven successful in the United States and foreign countries as well. Until Virginia has a number of years evaluation, they refer to sewer treatments as "experimental". It was emphasized that this type plant maximizes treatment at a lower cost not only initially but through operations and maintenance as well.

Inquiries were made of time periods for which Lane stated it would take 6 to 8 months to complete design; up to 60 days each by the State Health Department and State Water Control Board for review plus EPA approval and 18 to 24 months for construction. Even though the deadline for Norton and Wise is 1991, using aforesaid time periods the board agreed time is of the essence. Although the board had planned on touring the Coeburn facilities they postponed the said tour due to the urgency of business at hand.

Upon discussion of the attorney, Lewey Lee moved to hire Kenneth Asbury as legal counselor for the authority. Ron McCall seconded with vote all ayes. A retainer fee of $200.00 monthly was agreed upon with additional fees based on the services performed.

addressed questions to Mr. Lane, to which he responded.

AUTHORITY BY-LAWS:

The proposed by-laws as formulated by the committee of Mr. Lee, Mr. McCall and Mr. Hale were discussed and considered by the members. A motion was made by Eugene Hillman seconded by Charlie Daniels to approve the by-laws leaving blank the fee under Section VIII which must be set by localities.

Voting Aye: Daniels, Hale, Mays, McCall, Hillman
Voting Nay: None

BUDGET:

A proposed budget in the amount of $29,750.00 for the period of October thru December was presented by the Director. A motion was made by Charlie Daniels seconded by Robert Hale to approve said budget further authorized the Director to proceed in securing Public Officials Liability and Workers Compensation Insurance.

Voting Aye: Daniels, Hale, Mays, McCall, Hillman
Voting Nay: None

PAYROLL SCHEDULE:

A motion was made by Ron MCall seconded by Eugene Hillman to establish 26 pay periods per annum.

Voting Aye: Daniels, Hale, Mays, McCall, Hillman
Voting Nay: None

FINANCIAL RECORDS:

A motion was made by Charlie Daniels seconded by Ron McCall to authorize the Director to secure proposals and employ a CPA to assist in establishing a financial records system for the Authority which will conform with State Auditors requirements.

Voting Aye: Daniels, Hale, Mays, McCall, Hillman
Voting Nay: None

PAYABLES PROCEDURES:

A motion was made by Ron McCall seconded by Charlie Daniels to authorize the Director and Chairman or Vice Chairman to pay Payroll, Accounts Payable and Contract items as covered

in the approved budget and to submit a financial statement to the Authority.

Voting Aye: Daniels, Hale, Mays, McCall, Hillman
Voting Nay: None

BANK DEPOSITORY:

A motion was made by Ron McCall seconded by Charlie Daniels to designate Dominion Bank, Norton, Virginia as the depository for Authority funds.

Voting Aye: Daniels, Hale, Mays, McCall, Hillman
Voting Nay: None

There being no further business to come before the Authority at this time the Chairman declared the meeting adjourned.

Chairman

Secretary

A RESOLUTION OF THE
COEBURN-NORTON-WISE REGIONAL WASTE WATER TREATMENT AUTHORITY

WHEREAS, the Coeburn-Norton-Wise Regional Waste Water Treatment Authority has been incorporated under Chapter 28, Title 15.1 of the Code of Virginia, known as the Virginia Water and Sewer Authorities Act, and the Articles of Incorporation have been filed with the State Corporation Commission in Richmond, Virginia; and,

WHEREAS, Section 13.1-697 of the Code of Virginia authorizes a corporation to indemnify an individual made a party to the proceedings because he is or was a director against liability incurred in the proceedings if:

1. He conducted himself in good faith; and,

2. He believed:

   a. In the case of conduct in his official capacity with the corporation, that his conduct was in its best interest; and,

   b. In all other cases, that his conduct was at least not opposed to its best interests; and

3. In the case of any criminal proceeding, he had no reasonable cause to believe his conduct was unlawful.

B. A director's conduct with respect to any employee benefit plan for a purpose he believed to be in the interests of the participants in and beneficiaries of the plan is conduct that satisfies the requirement of paragraph 2b of sub-section A of this section.

C. The termination of a proceeding by judgment, order, settlement or conviction is not of itself, determinative that the director did not meet the standard of conduct described in this section.

D. A corporation may not indemnify a director under this section:

1. In connection with a proceeding by or in the right of the corporation in which the director was adjudged liable to the corporation; or

2. In connection with any other proceeding changing improper personal benefit to him, whether or not involving action in his official capacity, in which he was adjudged liable on the basis that personal benefit was improperly received by him.

E. Indemnification permitted under this section in connection with a proceeding by or in the right of the corporation is limited to reasonable expenses incurred in connection with the proceeding.

WHEREAS, the Coeburn-Norton-Wise Regional Waste Water Treatment Authority desires to provide for indemnification of its officers and directors by amending the by-laws of the corporation;

NOW, THEREFORE, BE IT RESOLVED that the by-laws of the corporation be amended to provide indemnification of the directors and officers by inserting a provision thereunder as follows:

> Each director and officer of the Authority now or hereafter serving as such, shall be indemnified by the Authority against any and all claims and liabilities to which he has or shall become subject by reason of serving or having served as such director or officer, or by reason of any action alleged to have been taken, omitted, or neglected by him as such director or other officer; and the Authority shall reimburse each such person for all legal expenses reasonably incurred by him in connection with any such claim or liability, provided, however, that no such person shall be indemnified against, or be reimbursed for any expense incurred in connection with, any claim or liability arising out of his own wilful misconduct or gross negligence.
>
> The right of indemnification hereinabove provided for shall not be exclusive any rights to which any director or officer of the Authority may otherwise be entitled by law, and shall be under the guideline of Section 13.1-697 of the Code of Virginia.

ADOPTED this the 6th day of January, 1988.

COEBURN-NORTON-WISE REGIONAL WASTE
WATER TREATMENT AUTHORITY

CHAIRMAN

ATTEST:

CLERK

City of Norton
P.O. Box 618
Norton, Virginia 24273-0618

City Manager

April 25, 1988

Mr. Charles Daniels
P. O. Box 188
Norton, Va. 24273

Dear Charlie:

This is to advise you that the Norton City Council at its regular meeting held Tuesday, April 19, 1988 has reappointed you to serve another four year term on the Norton Industrial Development Authority. This term will expire May 10, 1992. I am, by copy of this letter, advising Mrs. Dorothy Chittester, Chairman of this Authority, of your reappointment.

You were also reappointed to another four year term on the Regional Wastewater Authority with said term to expire May 15, 1992. I am also advising, by copy of this letter, Mr. Gene Brooks, Executive Director of this Authority, of your reappointment.

Congratulations on your reappointments and if my office or I may be of service to you or the Authorities, please feel free to call on me.

Sincerely,

CR Brown

Charles R. Brown

CRB/mb

cc: Mrs. Dorothy Chittester

✓Mr. Gene Brooks

3. Preliminary design calculations and drawings for the Treatment Plant have been submitted to the State Health Department based upon directions given during the meetings mentioned in Item 2 above.

4. The field work for the boundary survey for the Treatment Plant property has been completed. We would expect to have the final property plat completed by June 17, 1988.

5. Design surveying on the interceptor line has been completed with the exception of a portion of the Riverview area and a portion of the Tacoma area where property owners have been reluctant to allow access by suvey parties. Plans and profiles for approximately 40% of the line has been completed.

6. The Environmental impact Assessment has been completed and filed with the Executive Director.

BOARD REORGANIZATION:

The Chairman announced that to be in compliance with Section XII of the by-laws, the Board must now reorganize.

At the request of Mr. Daniels, Dr. Greear relinquished the Chair to Mr. Lee.

Mr. Lee then asked for nominations for Chairman of the Authority.

A motion was made by Charlie Daniels seconded by Eugene Hillman to elect Dr. Greear as Chairman.
No other nominations being made, Mr. Lee called for a roll call vote.

Voting Aye: Hillman, McCall, Craft, Hale, Daniels, Lee

Abstain: Greear

Voting Nay: None

Mr. Lee then called for Nominations for Vice Chairman.
A motion was made by Ron McCall seconded by Glenn Craft to elect William Mays as Vice Chairman.
No other nominations being made, Mr. Lee called for a roll call vote.

Voting Aye: Greear, Hillman, McCall, Craft, Hale, Daniels, Lee

Voting Nay: None

Mr. Lee then relinquished the Chair back to Dr. Greear.

The Chairman then called for nominations for Secretary.

A motion was made by Glenn Craft Seconded by Robert Hale to elect Lewey Lee as Secretary.
No other nominations being made the Chairman called for a roll call vote.

Voting Aye: Greear, Hillman, McCall, Craft, Hale, Daniels

Abstain: Lee

Voting Nay: None

The Chairman stated the next order of business was the hiring of an Executive Director for the Authority.
A motion was made by Lewey Lee seconded by Charlie Daniels to hire E. E. Brooks as Executive Director.
The Chairman then called for a roll call vote.

Voting Aye: Greear, Hillman, McCall, Craft, Hale, Daniels, Lee

Voting Nay: None

FISCAL YEAR BUDGET 1988-89:

The Director presented to the Board a proposed operating budget in the amount of $92,000.00 for the fiscal year beginning July 1, 1988 and ending June 30, 1989. Said budget is predicated upon interim loan funds being available. Should these funds not be available, the Board may have to consider a revised budget during the Fiscal Year.

The Board reviewed and discussed the budget at length.
A motion was made by Charlie Daniels seconded by Robert Hale to approve the budget as submitted and to appropriate the amounts needed for wages and benefits.
The Chairman directed a roll call vote.

Voting Aye: Greear, Hillman, McCall, Craft, Hale, Daniels, Lee

Voting Nay: None

OTHER:

The Chairman appointed the following members to serve as a Personnel Committee.

Lewey Lee
Ron McCall
Robert Hale

He directed this Committee to work with the Executive Director in developing a Personnel Policy and Procedures Manual, Job Descriptions, Wage and Benefit Plan and a Grievance Procedure.

A motion was made by Glenn Craft seconded by Eugene Hillman to adjourn:

Voting Aye: Greear, Hillman, McCall, Craft, Hale, Daniels, Lee

Voting Nay: None

Thereupon the Chairman declared the meeting adjourned.

Chairman

Secretary

A REGULAR MEETING OF THE COEBURN-NORTON-WISE REGIONAL WASTEWATER TREATMENT AUTHORITY WAS HELD IN THE COUNCIL ROOM, CITY HALL, NORTON, VIRGINIA ON WEDNESDAY JULY 6, 1988.

MEMBERS PRESENT:

Danny Greear, Chairman
Eugene Hillman
Ron McCall
William Mays
Robert Hale
Charlie Daniels
Lewey Lee

MEMBERS ABSENT:

Glenn Craft
D. L. Boggs

ALSO PRESENT:

E. E. Brooks, Director
Bobby Lane, Dewberry & Davis

MINUTES:

Dr. Greear, Chairman, called the meeting to order and asked for a review of the minutes. A motion was made by Charlie Daniels seconded by Lewey Lee to approve the minutes of June 8, 1988 as presented.

Voting Aye: Greear, Hillman, McCall, Mays, Hale, Daniels, Lee

Voting Nay: None

FINANCIAL REPORT:

In reviewing the financial report, Ron McCall requested that the report be revised to include Capital expenditures. The Director advised that the change had been made. A motion was made by Ron McCall seconded by Robert Hale to approve the financial report as submitted.

Voting Aye: Greear, Hillman, McCall, Mays, Hale, Daniels, Lee

Voting Nay: None

PUBLIC COMMENTS:

The Chairman asked if there was anyone present who desired to speak to the Authority. There were none.

AMMENDMENT TO BY-LAWS:

As requested by the Board at it's last regular meeting a proposed ammendment to the by-laws, as prepared by the Authority Attorney, was presented for discussion.

A motion was made by Lewey Lee seconded by Charlie Daniels to amend Section XII of the By-Laws to read as follows:

An organizational meeting shall be held in June of each even numbered year to elect officers and an Executive Director, for the next ensuing two years, beginning June of 1988 and continuing every two years thereafter.

The ammendment was adopted by unanimous vote.

This the 6th day of July 1988.

/S/ Danny C. Greear
Chairman

/S/ Lewey K. Lee
Secretary

PERSONNEL COMMITTEE:

Robert Hale and Lewey Lee reported that a meeting of the Personnel Committee had been held and they had decided to use the proposed Policy Manual prepared by the Director. The Committee will meet again on July 20th and expects to make a recommendation to the Board on a complete Personnel Policy, Job Description, Pay Plan and Grievance Procedure. Mr. Lee requested that the members review their copies of the proposed manual.

RESOLUTION #88-2:

Having been advised that the State Water Control Board is seeking additional comments on their proposed Toxic Management Regulations, a motion was made by William Mays seconded by Robert Hale to adopt the following Resolution:

RESOLUTION REGARDING PROPOSED TOXIC
MANAGEMENT REGULATIONS, VR 680-14-03

WHEREAS, The Virginia State Water Control Board (SWCB) is proposing to adopt Toxics management Regulations, VR 680-14-03, and has invited public comment concerning these regulations; and

WHEREAS, we believe that the adoption of these regulations as proposed will have a major and significant economic impact upon the Coeburn/Norton/Wise Regional Wastewater Treatment Authority, its member localities and other industries and municipalities; and

WHEREAS, the environmental impact of the adoption of these regulations in many areas of Southwestern Virginia is uncertain since Publically Owned Treatment Works (POTWs) constitute a minor portion of stream pollutant loading as indicated by the Southwest Virginia 208 Plan (June, 1978).

NOW, THEREFORE BE IT RESOLVED that the Coeburn/Norton/Wise Regional Wastewater Treatment Authority requests that the SWCB consider these factors and

1.) Cause to be conducted an economic impact study and analysis as required by law.

2.) Analyse the actual beneficial impact of these regulations upon stream quality throughout the Commonwealth, keeping in mind all potential pollution loadings upon the stream.

3.) Review available technology in wastewater treatment, aquatic toxicity and other laboratory testing techniques and procedures to determine the reliability and availability of procedures necessary to carry out the intent of the proposed regulations.

4.) Review standards now in place in othe States and on a nationwide basis to determine whether the proposed regulations and water quality criteria are "in line" with regulatory efforts being promulgated by the Federal or other State Government.

5.) Compile the results of these studies and investigations for SWCB staff review and presentation to the Governor and the public prior to the further consideration of these regulations.

This resolution adopted July 6, 1988, by the Coeburn/Norton/Wise Regional Wastewater Treatment Authority.

/S/ Danny C. Greear
Chairman

ATTEST:

/S/ Lewey K. Lee
Secretary

each of the member localities since the last meeting. Hopefully the Authority will be in a position at your September 1988 meeting to certify no-excessive I/I.

5. With the I/I and County participation issue now underway, the next matter which must be resolved is the (Norton) Benges Branch Plant flow. We will be meeting with the City during the next month to review this situation.

CONSENT DECREE:

The Engineer and Director presented to the Board the new consent decree just received from the SWCB. They discussed the favorable changes that had been incorporated into this Decree that had been requested, i.e., localities allowed to operate on existing permits until new plant is on line, the SWCB Executive Director in charge of ERC's, no original ammonia limits on new plant, option of two (2) year study period and others. The Board will consider official action at the October meeting, following the member localities meetings.

BOND COUNSEL:

The Director advised the Board that the Virginia Resources Authority, who is administering the Loan, requires that the Board retain Bond Counsel for the loan closing.

A motion was made by Glenn Craft seconded by Robert Hale to authorize the Director and Authority Attorney to negotiate and retain proper Bond Counsel.

Voting Aye: Greear, Hillman, McCall, Mays, Craft, Hale Daniels, Lee

Voting Nay: None

A motion was made by Glenn Craft seconded by William Mays to adjourn.

Voting Aye: Greear, Hillman, McCall, Mays, Craft, Hale, Daniels, Lee

Voting Nay: None

Thereupon the Chairman declared the meeting adjourned.

Chairman

Secretary

A REGULAR MEETING OF THE COEBURN-NORTON-WISE REGIONAL WASTEWATER TREATMENT AUTHORITY WAS HELD IN THE COUNCIL ROOM, CITY HALL, NORTON, VIRGINIA ON WEDNESDAY OCTOBER 5, 1988 AT 7:00 P. M.

MEMBERS PRESENT:

William Mays, Vice Chairman	Robert Hale
Alvin Collins	Charlie Daniels
Glenn Craft	Lewey Lee

MEMBERS ABSENT:

Danny Greear
Eugene Hillman
Ron McCall

ALSO PRESENT:

E. E. Brooks, Director
Bobby Lane and Lee Maddox, Dewberry & Davis

MINUTES:

William Mays, Vice Chairman, called the meeting to order and asked for a review of the minutes. A motion was made by Glenn Craft seconded by Robert Hale to approve the minutes of September 7, 1988 as presented.

Voting Aye: Mays, Collins, Craft, Hale, Daniels, Lee

Voting Nay: None

FINANCIAL REPORT:

After review of the financial report, a motion was made by Robert Hale seconded by Lewey Lee to approve the financial report as presented.

Voting Aye: Mays, Collins, Craft, Hale, Daniels, Lee

Voting Nay: None

PUBLIC COMMENTS:

The Chairman asked if there was anyone present who desired to speak to the Board. There were none.

CONSENT DECREE:

The Board having received at it's last meeting a copy of the proposed consent decree from the SWCB and having reviewed and discussed said Decree, again reviewed the document. The Director advised the Board that the Decree had been reviewed and approved by the Attorney and the three member localities. A motion was made by Lewey Lee seconded by Charlie Daniels to approve said Decree and authorize the Vice Chairman and Attorney to sign on behalf of the Authority.

Voting Aye: Mays, Collins, Craft, Hale, Daniels, Lee

Voting Nay: None

PRELIMINARY LOAN ACCEPTANCE:

A preliminary loan approval form, with loan requirements and conditions from the Virginia Resources Authority was presented for the Board's consideration. A letter from Mr. Asbury, Attorney was also presented showing he had reviewed the Bond Documents and conditions and found them to be in proper order. A motion was made by Lewey Lee seconded by Glenn Craft to approve the preliminary loan documents and authorized the Executive Director to sign on behalf of the Authority.

Voting Aye: Mays, Collins, Craft, Hale, Daniels, Lee

Voting Nay: None

Mr. E. E. Brooks, Executive Director
Coeburn/Norton/Wise Regional Wastewater
Treatment Authority
P. O. Box 618
Norton, Virginia 24273

Re: Virginia Revolving Loan Fund
Coeburn/Norton/Wise RWTA
C-515003-01

Dear Mr. Brooks:

On behalf of the Virginia Water Facilities Revolving Fund, also known as the Virginia Revolving Loan Fund (the "Fund"), the Virginia Resources Authority (the "VRA") is pleased to advise you that the State Water Control Board (the Board) has authorized a loan (the "Loan") from the Fund to the Coeburn/Norton/Wise Regional Wastewater Treatment Authority (the "Authority") in the amount of $10,403,850 at zero percent (0%) per annum for twenty (20) years. The loan will be used for the financing of certain improvements of the Authority's sewage treatment system (the "Project"). Accordingly, the Fund hereby offers to extend to the Authority the Loan as stated, subject, however, to satisfaction of the conditions set forth below and subject, as well, to satisfaction of the conditions to purchase the Authority's Local Bond set forth in the form of the Financing Agreement (Sections 2.1, 3.1, and 3.2) enclosed herewith.

It is understood that the Loan will be secured by a pledge of the Authority's sewer system revenues.

Prior to loan closing, the Authority shall have duly established an enforceable schedule of rates and charges for the use of the Authority's sewer system, which shall be satisfactory to the Fund in all respects. In this regard, it is understood that rates and charges shall be established in such amounts as may be required to meet and maintain the rate coverage factor of 115% [net revenues available for payment of debt service (after payment of operations and maintenance expenses) equal to 115% of debt service on the Local Bond plus other indebtedness, if any] as set forth in Section 5.1 of the attached form of financing agreement.

Prior to loan closing, the Authority shall also have entered into intermunicipal service contracts with the Towns of Coeburn and Wise and the City of Norton to provide sewage treatment service in return for service fee payments for their respective allocable portions of the system. Such service contracts shall be in form and content satisfactory to the Fund and its counsel.

The Authority must provide the VRA with evidence that other funds and/or financing are in place for the Project cost not funded with the proceeds of the Loan, prior to the closing of the Loan.

Loan closing and the disbursement of the funds thereunder shall also be subject to the receipt of requisite funding for the Project from the United States Environmental Protection Agency by the Fund's Capitalization Grant under Title VI of the Water Quality Act of 1987.

Loan closing and the disbursement of funds in connection therewith shall remain subject to satisfaction of any condition prerequisite thereto established by the Board. The Authority shall comply in all respects with all applicable federal laws, regulations and other requirements relating to or arising out of or in connection with the Project and the funding thereof by the Fund, including, but not limited to, the federal "crosscutting" requirements identified in Schedule A attached hereto. Where noncompliance is determined by the Fund or the Board of such requirements, the issue shall be referred to the proper Federal authority and/or agency for consultation and/or enforcement action.

If you have any questions concerning the foregoing, please free to call Mr. Charles L. Massie or myself. If you concur with the terms and conditions herein stated, please acknowledge your acceptance thereof by signing below where indicated and returning the original hereof to me no later than October 21, 1988.

If loan closing shall not have occured by August 31, 1989, it is understood that the Fund reserves the right to discontinue processing of the Authority's application.

Sincerely Yours,
THE VIRGINIA REVOLVING LOAN FUND
BY: THE VIRGINIA RESOURCES AUTHORITY

/s/ Shockley D. Gardner, Jr.
Executive Director

The foregoing terms and conditions are hereby acknowledged and accepted this 5th day of October, 1988.

BY: /s/ E. E. Brooks
Executive Director

cc: Richard N. Burton
Don W. Wampler
Chee Mee Hu
Daniel E. Rogers, II, Esquire

****

Mr. E. E. Brooks, Executive Director
Coeburn-Norton-Wise Regional Waste Water Treatment Authority
P. O. Box 618
Norton, Virginia 24273

Re: Virginia Revolving Loan Fund
Coeburn-Norton-Wise RWTA-C-515003-01

Dear Mr. Brooks:

I have examined the form letter, the bond and other documents with reference to the form financing agreement in connection with the Virginia Revolving Loan Fund Act.

In my opinion, these documents seem to be in proper order, as they were prepared by Christian, Barton, Epps, Brent and Chappell.

The loan, of course, would be secured by a pledge of the Authority's sewer system revenues and prior to loan closing, we must establish an enforceable schedule of rates and charges for the use of the sewer System which will meet and maintain the rate coverage factor of 115%.

As we had previously agreed to use Hunton & Williams on this bond issue, I have taken the liberty of forewarding a copy of the form of the bond to Mr. Robert M. Jessup, Jr. of Hunton & Williams. They are handling this particular loan out of their Raleigh, North Carolina Office.

Yours Very Truly,

/s/ K. P. Asbury
Kenneth P. Asbury

KPA:bhg

SERVICE AGREEMENT

COEBURN-NORTON-WISE
REGIONAL WASTEWATER TREATMENT AUTHORITY

THIS SERVICE AGREEMENT, made and entered into as of the 10th Day of July 1989, by and between the TOWN OF COEBURN, VIRGINIA, the CITY OF NORTON, VIRGINIA, and the TOWN OF WISE, VIRGINIA, municipal corporations of the Commonwealth of Virginia, WISE COUNTY, VIRGINIA, a political subdivision of the Commonwealth of Virginia, acting through its Board of Supervisors, and COEBURN-NORTON-WISE REGIONAL WASTEWATER TREATMENT AUTHORITY (C-N-W), a body politic and corporate duly created pursuant to the Virginia Water and Sewer Authorities Act;

WITNESSETH THAT:

WHEREAS, the parties hereto agree that the health and safety of the residents within the Service Area, as hereinafter defined, require that the rivers and streams of the Service Area be clean and free from obnoxious domestic, commercial and industrial wastes and that the citizens thereof be provided with safe and reliable wastewater treatment; and

WHEREAS, the parties hereto are in agreement that the above mentioned needs can best be met by a regional wastewater treatment facility to serve the Service Area; and

WHEREAS, C-N-W, with the approval of the other parties hereto, has been designated by the Virginia State Water Control Board and the United States Environmental Protection Agency as the entity to provide wastewater treatment services for the Service Area; and

WHEREAS, C-N-W has contracted with the firm of Dewberry and Davis, Marion, Virginia, to prepare the engineering plans and specifications for a regional wastewater treatment facility and transmission lines with a capacity of 4.0 million gallons per day, such capacity having been determined to be adequate to treat wastewater expected from the Service Area; and

WHEREAS, the other parties hereto desire that C-N-W receive their normal domestic and acceptable commercial and industrial wastewater originating in their individual service areas within the Service Area, and treat such wastewater at such regional facility; and

WHEREAS, it is the intention of the parties hereto that the capacity of such regional facility be allocated among each of the parties hereto for their respective service areas within the Service Area in a fair and equitable manner consistent with present and anticipated future needs of the Service Area, and that the widest degree of flexibility in future allocations among the respective service areas be available to the end that such regional facility shall be truly regional in scope and and operation and shall operate to the mutual benefit of all the parties hereto; and

WHEREAS, the parties hereto desire to enter into this Agreement for the purpose of establishing an equitable basis for sharing the costs of constructing and operating such regional facility, and recognize that this Agreement will be used by C-N-W to facilitate obtaining financing for a portion of the costs of such construction;

NOW, THEREFORE, for and in consideration of the premises and the mutual covenants and agreements herein contained, the parties hereto covenant and agree as follows:

Article I

DEFINITIONS AND WARRANTIES

Section 1.1. Definitions: The following terms as used in this Agreement shall have the following meanings:

"Abnormal Wastewater" shall mean (a) wastewater that is not Acceptable Wastewater, and (b) wastewater flow in excess of Allocated Capacity.

"Acceptable Wastewater" shall mean wastewater which meets the requirements of C-N-W's sewer use regulations, the Participants' sewer use ordinances and any applicable requirements of EPA or the State Water Control Board.

"Act" shall mean the Virginia Water and Sewer Authorities Act (Chapter 28, Title 15.1, Code of Virginia of 1950, as amended).

"Agreement" shall mean this Service Agreement, including all amendments and supplements hereto.

"Allocated Capacity" shall mean for any Participant the amount of wastewater it is entitled to deliver to the Regional Facility pursuant to this Agreement or pursuant to any agreement between Participants in accordance with Section 4.2. The initial Allocated Capacity for each Participant shall be as follows, expressed in millions of gallons per day:

City of Norton	1.652
Town of Coeburn	0.760
Town of Wise	1.188
Wise County	.400
Total	4.000

"Bonds" shall mean revenue bonds issued by C-N-W to obtain funds, together with other available funds, to pay the cost of constructing the Regional Facility and shall include any notes or other obligations issued for such purpose, including any obligations issued to refund any such obligations.

"Collection Facilities" shall mean any facilities of any Participant used or to be used in connection with collecting and delivering wastewater to C-N-W at Points of Delivery, including but not limited to collector and interceptor lines, pump stations and force mains, but shall not include any part of the Regional Facility.

"C-N-W" shall mean the Coeburn-Norton-Wise Regional Wastewater Treatment Authority, as created pursuant to the Act by a Certificate of Incorporation issued by the State Corporation Commission of Virginia on September 18, 1987.

"C-N-W Board" shall mean the Board of the members of C-N-W.

"Cost," when used with respect to the Regional Facility, shall have the meaning specified in Section 62.1-224, Code of Virginia of 1950, as amended, or any successor provision.

"EPA" shall mean the United States Environmental Protection Agency or any agency of the United States of America which may succeed to its duties.

"Monthly User Charge" shall mean the charge payable by the Participants as determined in accordance with Section 6.2.

"Participants" shall mean the local public bodies expected to deliver wastewater to the Regional Facility, which are the Town of Coeburn, the City of Norton, the Town of Wise and Wise County, Virginia.

"Plant" shall mean the 4.0 million gallons per day wastewater treatment plant planned as part of the Regional Facility.

"Points of Delivery" shall mean those points for the delivery of wastewater to the Regional Facility as may be agreed upon from time to time by C-N-W and the one or more Participants delivering or proposing to deliver wastewater at any such point. Initially, the Points of Delivery shall be as follows:

(a) For wastewater delivered by the Town of Wise, the Wise Lagoon on Bear Creek. The meter and monitoring equipment shall be installed near the intersection of U.S. Route 58 and State Route 681. The Town of Wise shall control the collector services between Wise Lagoon and the metering point.

(b) For wastewater delivered by the City of Norton, the Ramsey wastewater plant, located at 1445 Kentucky Ave. S.E., Norton.

(c) For wastewater delivered by the Town of Coeburn, the sewage pumping station in Riverview, on State Route 646 at the Western corporate limits of the Town of Coeburn.

(d) For wastewater delivered by Wise County, eight points to be determined by the Wise County Board of Supervisors.

"Regional Facility" shall mean the Coeburn-Norton-Wise Regional Wastewater Treatment Facility and all associated facilities to be constructed and owned by C-N-W, as the same may from time to time exist. Such facilities shall include, but shall not be limited to, a sewer lift station and force main for the Powell River Drainage Area of the City of Norton, an interceptor line from Wise to Norton to Coeburn to the Plant, the Plant itself, the outfall line from the wastewater treatment plant to the Guest River and all associated metering and telemetering equipment.

"Service Area" shall mean the areas of the Guest River drainage basin upstream from river mile 7 and other contiguous areas served from time to time by the Participants.

"State Water Control Board" or "SWCB" shall mean the Virginia State Water Control Board or any agency of the Commonwealth of Virginia which may succeed to its duties.

Section 1.2. Representations and Warranties:

Each of the parties hereto makes the following representations and warranties, all of which shall continue for the duration of this Agreement:

(a) It has full power and authority to enter into this Agreement and to consummate and carry out the transactions contemplated by this Agreement. It has taken or will take all action required by this Agreement, the Act and other applicable laws in connection therewith.

(b) It has duly authorized the execution and delivery of this Agreement.

(c) The execution and delivery of this Agreement and the performance of its obligations hereunder are within its corporate powers and will not conflict with, or constitute a breach or result in a violation of, (i) any Federal or Virginia Constitutional or statutory provision, (ii) in any material respect, any agreement or other instrument to which such party is a party or by which it is bound, (iii) any order, rule, regulation, decree or ordinance of any court, government or governmental authority having jurisdiction over it or its property, (iv) for C-N-W, the Act or its articles of incorporation or bylaws, and (v) for each of the Town of Coeburn, the City of Norton and the Town of Wise, its charter.

(d) There is no litigation at law or in equity or any proceeding before any governmental agency pending or, to its knowledge, threatened with respect to (i) its existence, (ii) its authority to execute and deliver this Agreement, (iii) the validity or enforceability of this Agreement or the transactions contemplated hereby, (iv) the title of its officers who are executing this Agreement, or (v) any authority or proceedings relating to its execution and delivery of this Agreement.

(e) It is a duly organized and validly existing public body politic and corporate.

Article II

PARTICIPANTS' COLLECTION FACILITIES

Section 2.1. Collection Facilities Generally:

The parties hereto recognize that the Regional Facility can be operated only in connection with Collection Facilities provided by the Participants. Certain of the Participants already have Collection Facilities, which in some instances must be modified or expanded in order to utilize the Regional Facility, while other Participants have no

Collection Facilities at all. The Collection Facilities shall be the responsibility of the Participants.

Section 2.2. Excessive Infiltration/Inflow:

Each Participant shall maintain and/or upgrade existing and future Collection Facilities so that excessive infiltration/inflow, as determined by C-N-W from time to time, will not be delivered to the Regional Facility. C-N-W and the Participants have agreed that infiltration/inflow causing wastewater in excess of a Participant's Allocated Capacity to be delivered to the Regional Facility will be considered excessive to the extent of such excess over Allocated Capacity.

Each Participant having Collection Facilities has submitted to C-N-W for its approval a schedule for removing any excessive infiltration/inflow in its existing Collection Facilities and shall complete such removal prior to completion of construction of the Regional Facility.

Section 2.3. Operation of Collection Facilities:

Each Participant shall operate its Collection Facilities in accordance with reasonable rules and regulations of C-N-W so that only Acceptable Wastewater is delivered to C-N-W for treatment in the Regional Facility. Each Participant shall adopt and enforce appropriate regulations for the use of Collection Facilities within its service area so as to assure compliance with such rules and regulations.

Article III

REGIONAL FACILITY

Section 3.1. Design and Construction:

C-N-W has made and will continue to make, where appropriate, application for grants and loans for the design and construction of the Regional Facility. Upon approval of such grants and loans to the extent of 100% of eligible costs and the availability of

such additional funds as may be necessary, C-N-W shall proceed with design and construction of the Regional Facility in order that it may be placed in operation as soon as may be practicable. This shall not be later than February 15, 1991, which is the date shown for commencement of operation in Appendix A (compliance schedule) of the Consent Decree entered in the Circuit Court of the City of Richmond on February 11, 1989, in Chancery Suit Number (N-7453-2—P-5521) between the Commonwealth of Virginia, ex rel. State Water Control Board and Richard N. Burton, Executive Director, Plaintiffs, vs. The Town of Coeburn, The City of Norton, The Town of Wise and Coeburn-Norton-Wise Regional Wastewater Treatment Authority.

Section 3.2. Financing:

C-N-W shall proceed in a timely manner to secure financing for design costs and other expenses in connection with the Regional Facility. C-N-W shall, with all reasonable dispatch after construction costs are established and grants in amounts satisfactory to it are approved, issue and sell Bonds pursuant to the Act in an amount, together with other available funds, which will be sufficient to pay the Cost of the Regional Facility, including the repayment of any interim financing; provided, however, that nothing contained in this Agreement shall require C-N-W to issue Bonds other than upon terms deemed reasonable by it. C-N-W shall diligently pursue all available grants and zero interest loans as the means to finance the Regional Facility.

Article IV

ALLOCATION OF CAPACITY

Section 4.1. Initial Allocation of Capacity:

The Regional Facility will have an initial design capacity of 4.0 million gallons per day, which is hereby allocated to each Participant in an amount equal to its Allocated Capacity. The initial Allocated Capacities are based on records furnished by the

Participants and the attached Memoranda of Understanding, which are hereby made part of this Agreement by reference.

The initial Allocated Capacities shall be reviewed annually on each March 1, as they pertain to operation and maintenance cost only, and any new Allocated Capacities will be effective for the twelve months beginning the following July 1. The first review will be conducted during the first year of operation of the Regional Facility.

Revised Allocated Capacities shall be determined from the flow records of the Authority. The calculations shall then be made and submitted to each Participant for review together with the proposed budget and user rates.

The C-N-W Board shall hold a public hearing on the allocations and user rates to allow all Participants an opportunity to provide input.

After considering all input the Board shall adopt the Allocated Capacities and user rates to be effective for the new fiscal year beginning on July 1.

Section 4.2. Reallocation of Capacity:

Any Participant (sometimes referred to in this Section as the Grantor) may reallocate any excess portion of its Allocated Capacity to any other Participant (sometimes referred to in this Section as the Grantee). When it has been determined that any Participant has a need for an additional Allocated Capacity, either through its own request or by the C-N-W flow records, the following procedure shall be followed: The C-N-W staff shall proceed to review and analyze the C-N-W flow records to determine such Participant's level of usage of existing Allocated Capacity as well as any documentation showing needs for additional Allocated Capacity. The staff shall further review the C-N-W flow records to determine if any Participants have unused flow allocations, by using the following formula: (Existing Participant Allocated Capacity - (sum of existing recorded flow) (2-year average) + 5% reserve + documented projected flow needs) = Unused allocation.) If the records show unused allocations are available,

the C-N-W staff shall proceed to meet with the Participant having excess allocations, or such Participant's Staff, to review the possibility of reallocation of any unused Allocated Capacity. If there is no documentation showing need or projected need for the unused Allocated Capacity, the C-N-W staff shall proceed to recommend to the C-N-W Board that the requested reallocation of flow be approved. If unused Allocated Capacity is to be reallocated from more than one Participant, then the amount to be reallocated from each such Participant shall equal the total amount to be reallocated multiplied by such Participant's Allocated Capacity subject to reallocation, divided by the total Allocated Capacity subject to reallocation from all such Participants. Priority needs of the Service Area must be met first. The C-N-W Board shall proceed to reallocate Allocated Capacity unless reasonable cause can be shown that it should not. Any such reallocation of Allocated Capacity may be undertaken and implemented without the consent of any Participant. All Participants shall be notified immediately upon any reallocation.

The cost basis for such reallocation shall be as follows: The C-N-W staff shall determine from its financial records the amount of "debt retirement costs" and "operation and maintenance costs," each as defined in Section 6.2, that are applicable to the stated flow reallocation and the total of said amount shall be deducted from the Grantor's allocated costs and transferred to the Grantee's allocated costs. This shall include all prior debt payments and reserves made by the Grantor on the unused allocation. The Grantee shall have the option to make a cash payment for the debt portion of the allocation. Otherwise, these costs will be included in the rate structure, and the prior costs refunded to the Grantor on a quarterly basis.

Section 4.3. Observance of Allocated Capacity:

No Participant shall consistently deliver wastewater to the Regional Facility in an amount in excess of its Allocated Capacity. At such time as any Participant is advised by C-N-W that the average flow of such Participant for any three consecutive months has reached 95% of its Allocated Capacity, such Participant shall take such steps as shall be permitted by law and necessary or desirable to comply with applicable regulations and orders of regulatory bodies related to the level of average daily flow, and to comply with the provisions of this Agreement regarding the delivery of wastewater by such Participant to the Regional Facility.

Section 4.4. Enlargement of Regional Facility:

In the event any one or more Participants advises C-N-W of a need for wastewater treatment capacity in excess of its Allocated Capacity, and such need cannot be met by reallocation pursuant to Section 4.2, C-N-W shall take appropriate action to create additional capacity at the Regional Facility on the following basis: The C-N-W Board shall consult with its engineers to determine the most cost effective and efficient expansion increment that can be constructed. If this increment is identical with the requested amount, the Board shall proceed with the expansion, and the total costs associated with this expanded capacity, including operation and maintenance, shall be allocated to the requesting Participant or Participants. Should the most cost effective and efficient expansion increment be larger than the amount requested, C-N-W shall notify all its Participants of the requested expansion and of its determination that a larger increment should be constructed, and the costs of any such expansion shall be distributed in the following manner: The requesting Participant shall pay all costs for the requested allocation, plus its proportionate share of the newly constructed excess capacity based on the percentage its Allocated Capacity bears to the total then-existing capacity of the Regional Facility. The remaining portion of the newly

constructed excess capacity, together with the costs thereof, shall be allocated to the remaining Participants on the basis of the percentages their Allocated Capacities bear to the total then-existing capacity of the Regional Facility. Any future reallocation needed shall be taken proportionately from each Participant having excess capacity, calculated in the same manner as set forth in Section 4.2. Only the City of Norton and the Towns of Coeburn and Wise, and not Wise County, shall have the right to cause the creation of additional capacity pursuant to this Section.

Article V

DELIVERY OF WASTEWATER AND OPERATION OF REGIONAL FACILITY

Section 5.1. Delivery, Acceptance and Treatment of Wastewater:

Upon completion of the Regional Facility and upon being advised that it has been approved for regular treatment of wastewater, each Participant shall deliver or cause to be delivered to C-N-W at Points of Delivery all Acceptable Wastewater collected by it in the Service Area, and shall not permit or provide for the final treatment of wastewater in the Service Area in any other manner, except in cases where valid discharge permits are presently in place. C-N-W shall accept and treat such wastewater delivered to it by the Participants up to their respective Allocated Capacities.

Section 5.2. Operation of Regional Facility:

C-N-W shall operate and maintain the Regional Facility in an efficient and economical manner, making all necessary and proper repairs, replacements and renewals, consistent with good business and operating practices for comparable facilities and in accordance with applicable standards of regulatory bodies. Treatment of wastewater shall meet all applicable standards.

Section 5.3. Rules and Regulations:

C-N-W shall adopt and enforce such reasonable rules and regulations as may be

necessary or desirable to ensure the efficient operation and maintenance of the Regional Facility and compliance with all applicable orders and regulations of regulatory bodies. Each Participant shall observe all such rules and regulations.

Article VI

CHARGES TO PARTICIPANTS

Section 6.1. Charges in General:

C-N-W shall fix the Monthly User Charges at such levels as may be necessary to provide funds, together with other available funds, sufficient at all times (a) to pay the principal of, the premium, if any, and interest on the Bonds, as the same become due, (b) to pay the cost of operation, maintenance and replacement of the Regional Facility, and (c) to maintain reasonable reserves for debt service and for replacements and improvements.

Section 6.2. Monthly User Charge:

The Monthly User Charge for each Participant shall consist of the sum of such Participant's allocable (a) "debt retirement costs," based on the ratio which the Allocated Capacity of such Participant bears to the total capacity of the Regional Facility and as set forth in the Memorandum of Understanding between Participants, except that Wise County shall not have any debt allocation on its original 200,000 gallons per day capacity because of its cash payment for this allocation, (b) "operation and maintenance costs," based on the ratio which the actual flow at the one or more Points of Delivery for such Participant bears to the total flow through all Points of Delivery, and (c) "the surcharge," if any. "Debt retirement costs" shall mean costs of paying principal of and premium, if any, and interest on Bonds as the same become due and providing reasonable reserves therefor. "Operation and maintenance costs" shall mean the sum of the expenses for administration of C-N-W, the ownership, operation and maintenance

of the Regional Facility, replacements and the amount of any "operation and maintenance costs" overruns for the previous year, less any revenue derived or to be derived from the sale of wastewater or products derived from the treatment of wastewater. "Surcharge" shall mean any charge for abnormal waste strength, volume or characteristics that may be determined by C-N-W in accordance with its rules and regulations.

In computing the Monthly User Charge there shall be determined separately the debt retirement costs and the operation and maintenance costs for (1) the Norton pump station and associated force main and (2) the Regional Facility and all associated facilities other than those described in item (1). Current costs as well as all future costs for repair and replacement for the Norton pump station and associated force main shall be attributed to the City of Norton.

The Authority shall hold a public hearing on the proposed Monthly User Charge and each Participant shall be afforded the opportunity of inquiry and suggestion. After such public hearing, the C-N-W Board shall proceed to adopt the Monthly User Charge and such determination shall be binding in the absence of manifest error.

Section 6.3. Billing and Payment of Monthly User Charges:

C-N-W shall determine the Monthly User Charge by March 1 of each year for the twelve months beginning the following July 1. The Monthly User Charge so determined shall not be changed during such twelve month period except to correct an error in calculation or as may be necessary to prevent a default in payment of the principal of or the premium, if any, or interest on Bonds, or to prevent a default under the resolution or agreement authorizing or securing Bonds. Bills shall be submitted to the Participants on the first working day of each month or as soon thereafter as may be practicable. Payment shall be due 15 days after the date of the bill. Amounts unpaid within 30 days after the date of the bill shall accrue interest at the rate of 1 1/2% per month, or at such higher rate as C-N-W may determine but not in excess of the maximum rate permitted by law, until paid.

Section 6.4. Payment of Charges; Limited Obligations:

Each Participant shall pay promptly when due the Monthly User Charge billed to it; provided, however, that each Participant shall be obligated to pay the Monthly User Charge only from the revenues received from its sewerage system available for such purpose, including availability, connection, consumption and service charges or fees or any other revenues of such system. Each Participant shall adopt such revenue generation measures as may be reasonably necessary and permitted by law to secure such funds, and shall revise such revenue measures as may be necessary from time to time. Nothing in this Agreement shall constitute a pledge of the faith and credit or the taxing power of any Participant.

Section 6.5. Meters:

C-N-W shall provide meters at each Point of Delivery to determine and record on a continuing basis the quantities of wastewater delivered by each Participant. Meters shall be tested by C-N-W for accuracy not less frequently than once every year. C-N-W shall test any meter for accuracy upon request of any Participant; provided, however, that if such meter shall be found to be accurate within a range of plus or minus 5%, the cost of the test shall be borne by the requesting Participant. If any meter should fail to record correctly the flow of wastewater, C-N-W shall estimate the amount of flow on the basis of prior experience.

Article VII

DURATION OF AGREEMENT

Section 7.1. Initial Term:

The initial term of this Agreement shall be twenty years next following its date; provided, however, that if on such date the Bonds have not been paid or provisions have not been made for their payment, the initial term of this Agreement shall continue

until the Bonds shall have been paid or provisions shall have been made for their payment.

Section 7.2. Continuation of Agreement:

This Agreement shall continue in effect beyond the initial term provided above until terminated by any of the parties hereto. No such termination shall become effective until two years after written notice thereof shall have been given to all the other parties hereto.

Article VIII

MISCELLANEOUS

Section 8.1. Amendments:

The Agreement may not be amended, modified or otherwise altered without the express written consent of all parties hereto, except that a Participant's Allocated Capacity may be changed by the C-N-W Board pursuant to Section 4.2. In addition, the parties hereto recognize that this Agreement will constitute an essential part of C-N-W's financing plan and that, after Bonds have been sold, this Agreement cannot be amended in any manner that will impair or adversely affect the security afforded hereby for the payment of the principal of and premium, if any, and interest on Bonds, or otherwise than in a manner consistent with the resolution or agreement authorizing or securing Bonds.

Section 8.2. Books and Records:

C-N-W shall keep proper books and records in accordance with generally accepted accounting principles applicable to governmental entities such as C-N-W, which shall be available for inspection at all reasonable times by the Participants through their duly authorized agents. C-N-W shall cause an annual audit of its books and records to be made by an independent certified public accountant at the end of each

fiscal year and certified copies thereof to be filed promptly with the other parties hereto. C-N-W's fiscal year begins on July 1 and ends on the following June 30.

Section 8.3. Successors and Assigns:

This Agreement shall be binding upon, inure to the benefit of and be enforceable by the parties hereto and their respective successors and assigns.

Section 8.4. Severability:

If any provision of this Agreement shall be held invalid or unenforceable by any court of competent jurisdiction, such holding shall not affect any other provision hereof.

Section 8.5. Counterparts:

This Agreement shall be executed in several counterparts, any of which shall be regarded for all purposes as an original.

IN WITNESS WHEREOF, the parties thereto have caused this Agreement to be executed, and their seals affixed and attested by their duly authorized officers, all as of the date first above written.

(SEAL)

Attest:

Mary D. Brown
City Clerk

CITY OF NORTON, VIRGINIA

By Cliff Dinwiddie

Its MAYOR

(SEAL)

Attest:

Sherry B Base
Town Clerk

TOWN OF COEBURN, VIRGINIA

By Harold L. Quigley Jr

Its MAYOR

(SEAL)

Attest:

Mayo B Stafford
Town Clerk

TOWN OF WISE, VIRGINIA

By Bill J. Wampler

Its Mayor

(SEAL)

Attest:

William P. Vanover
Clerk

BOARD OF SUPERVISORS OF WISE COUNTY, VIRGINIA

By B. Fred Eaton

Its Chairman

(SEAL)

Attest:

Secretary

COEBURN-NORTON-WISE REGIONAL WASTEWATER TREATMENT AUTHORITY

By Danny C. Hunt

Its Chairman - 9/20/05

DRAFT

SERVICE AGREEMENT

EASTERN SHORE REGIONAL
WASTEWATER TREATMENT AUTHORITY

DRAFT

THIS SERVICE AGREEMENT, made and entered into as of the _____ day of _____ by and between the TOWN OF ONANCOCK, VIRGINIA, the TOWN OF ACCOMAC, VIRGINIA THE TOWN OF MELFA, VIRGINIA, and the TOWN OF ONLEY, VIRGINIA, municipal corporations of the Commonwealth of Virginia, ACCOMACK COUNTY, VIRGINIA, a political subdivision of the Commonwealth of Virginia, acting through its Board of Supervisors, and THE EASTERN SHORE REGIONAL WASTEWATER TREATMENT AUTHORITY (E-S-A), a body politic and corporate duly created pursuant to the Virginia Water and Sewer Authorities Act;

WITNESSETH THAT:

WHEREAS, the parties hereto agree that the health and safety of the residents within the Service Area, as hereinafter defined, require that the rivers and streams of the Service Area be clean and free from obnoxious domestic, commercial and industrial wastes and that the citizens thereof be provided with safe and reliable wastewater treatment; and

WHEREAS, the parties hereto are in agreement that the above mentioned needs can best be met by a regional wastewater treatment facility to serve the Service Area; and

WHEREAS, E-S-A, with the approval of the other parties hereto, has been designated by the Virginia State Water Control Board and the United States Environmental Protection AGency as the entity to provide wastewater treatment services for the Service area; and

WHEREAS, E-S-A has contracted with the firm of Dewberry and Davis, Richmond, Virginia, to prepare the engineering plans and specifications for a regional wastewater treatment facility and transmission lines with

a capacity of 0.5 million gallons per day, such capacity having been determined to be adequate to treat wastewater expected from the Service Area; and WHEREAS, the other parties hereto desire that E-S-A receive their normal domestic and acceptable commercial and industrial wastewater originating in their individual service areas within the Service Area, and treat such wastewater at such regional facility; and

WHEREAS, it is the intention of the parties hereto that the capacity of such regional facility be allocated among each of the parties hereto for their respective service areas within the service area in a fair and equitable manner consistent with present and anticipated future needs of the service area, and that the widest degree of flexibility in future allocations among the respective service area be available to the end that such regional facility shall be truly regional in scope and operation and shall operate to the mutual benefit of all the parties hereto; and

WHEREAS, the parties hereto desire to enter into this Agreement for the purpose of establishing an equitable basis for sharing the costs of constructing and operating such regional facility, and recognize that this Agreement will be used by E-S-A to facilitate obtaining financing for a portion of the costs of such construction;

NOW, THEREFORE, for and in consideration of the premises and the mutual covenants and agreements herein contained, the parties hereto covenant and agree as follows:

Article 1

DEFINITIONS AND WARRANTIES

Section 1.1 Definitions: The following terms as used in this Agreement shall have the following meanings:

"Abnormal Wastewater" shall mean (a) wastewater that is not Acceptable Wastewater, and (b) wastewater flow in excess of Allocated Capacity.

"Acceptable Wastewater" shall mean wastewater which meets the requirements of E-S-A's sewer use regulations, the Participants' sewer use ordinances and any applicable requirements of EPA or the State Waster Control Board.

"Act" shall mean the Virginia Water and Sewer Authorities Act (Chapter 28, Title 15.1, Code of Virginia of 1950, as amended).

"Agreement" shall mean this Service Agreement, including all amendments and supplements hereto.

Allocated Capacity" shall mean for any Participant the amount of wastewater it is entitled to deliver to the Regional Facility pursuant to this Agreement or pursuant to any agreement between Participants in accordance with Section 4.2. The initial allocated capacity for each participant shall be as follows, expressed in millions of gallons per day:

Town of Onancock	0.212
Town of Accomc	0.071
Town of Melfa	0.054
Town of Onley	0.090
Accomac County	0.073

"Bonds" shall mean revenue bonds issued by E-S-A to obtain funds, together with other available funds, to pay the cost of constructing the Regional Facility and shall include any notes or other obligations issued for such purpose, including any obligations issued to refund any such obligations.

"Collection Facilities" shall mean any facilities of any Participant used or to be used in connection with collecting and delivering wastewater to E-S-A at Points of Delivery, including but no limited to collector and interceptor lines, pump stations and force mains, but shall not include any part of the Regional Facility.

"E-S-A" shall mean the Eastern Shore Regional Wastewater Treatment Authority, as created pursuant to the Act by a Certificate of Incorporation issued by the State Corporation Commission of Virginia on _____.

"E-S-A Board" shall mean the Board of members of E-S-A.

"Cost", when used with respect to the Regional Facility, shall have the meaning specified in Section 62.1-224, Code of Virginia of 1950, as amended, or any successor provision.

"EPA" shall mean the United States Environmental Protection Agency or any agency of the United States of America which may succeed to its duties.

"Monthly User Charge" shall mean the charge payable by the Participants as determined in accordance with Section 6.2.

"Participants" shall mean the local public bodies expected to deliver wastewater to the Regional Facility, which are the Town of Onancock, the

Town of Accomac, The Town of Melfa, The Town of Onley and Accomack County, Virginia.

"Plant" shall mean the 0.5 million gallons per day wastewater treatment plant planned as part of the Regional Facility.

"Points of Delivery" shall mean those points for the delivery of wastewater to the Regional Facility as may be agreed upon from time to time by E-S-A and the one or more Participants delivering or proposing to deliver wastewater at any such point. Initially, the Points of Delivery shall be as follows:

(a) For Wastewater delivery by the Town of Onancock, the meter and monitoring equipment shall be installed near the _____

_____

The Town of Onancock shall control the collector services between ___

_____, and the metering point.

(b) For wastewater delivered by the Town of Accomac_____

_____

(c) For wastewater delivered by the Town of Melfa, _____

_____

(d) For wastewater delivered by Town of Onley,_____

_____

(e) For wastewater delivered by Accomack County, eight points to be determined by the Accomack County Board of Supervisors.

"Regional Facility" shall mean the Eastern Shore Regional

Wastewater Treatment Facility and all associated facilities to be constructed and owned by E-S-A, as the same may from time to time exist. Such facilities shall include, but shall not be limited to the Plant itself, the outfall line from the wastewater treatment plant to the River and all associated metering and telemetering equipment.

"Service Area" shall mean the areas of the _____ drainage basin and other contiguous areas served from time to time by the Participants.

"State Water Control Board"or "SWCB" shall mean the Virginia State Water Control Board or any agency of the Commonwealth of Virginia which may succeed to its duties.

Section 1.2 Representations and Warranties:

Each of the parties hereto makes the following representations and warranties, all of which shall continue for the duration of this Agreement:

(a) It has full power and authority to enter into this Agreement and to consummate and carry out the transactions contemplated by this Agreement. It has taken or will take all action required by this Agreement, the Act and other applicable laws in connection therewith.

(b) It has duly authorized the execution and delivery of this Agreement.

(c) The execution and delivery of this Agreement and the performance of its obligations hereunder are within its corporate powers and will not conflict with, or constitute a breach or result in a violation of, (i) any Federal or Virginia Constitutional or statutory provision, (ii) in

any material respect, any agreement or other instrument to which such party is a party or by which is bound, (iii) any order, rule, regulation, decree or ordinance of any court, government or governmental authority having jurisdiction over it or its property, (iv) for E-S-A, the Act or its articles of incorporation or bylaws, and (v) for each of the Town of Onancock, The Town of Accomac,The Town of Melfa, The Town of Onlley and Accomack County, its charter.

(d) There is no litigation at law or in equity or any proceeding before any governmental agency pending or, to its knowledge, threatened with respect to (i) its existence, (ii) its authority to execute and deliver this Agreement, (iii) the validity or enforceability of this Agreement or the transactions contemplated hereby, (iv) the title of its officers who are executing this Agreement, or (v) any authority or proceedings relating to its execution and delivery of this Agreement.

(e) It is a duly organized and validly existing public body politic and corporate.

Article II

PARTICIPANTS' COLLECTION FACILITIES

Section 2.1 Collection Facilities Generally:

The parties hereto recognize that the Regional Facility can be operated only in connection with Collection Facilities provided by the Participants. Certain of the Participants already have Collection Facilities, which in some instance must be modified or expanded in order to utilize the Regional Facility, while other participants have no collection facilities at all. The Collection Facilities shall be the responsibility of the Participants.

Section 2.2 Excessive Infiltration/Inflow

Each participant shall maintain and/or upgrade existing and future Collection Facilities so that excessive infiltration/inflow, as determined by E-S-A from time to time, will not be delivered to the Regional Facility. E-S-A and the Participants have agreed that infiltration/inflow causing wastewater in excess of a Participant's allocated capacity to be delivered to the Regional Facility will be considered excessive to the extent of such excess over Allocated Capacity. Each Participant having Collection Facilities has submitted to E-S-A for its approval a schedule for removing any excessive infiltration/inflow in its existing Collection Facilities and shall complete such removal prior to completion of construction of the Regional Facility.

Section 2.3 Operation of Collection Facilities:

Each Participant shall operate its Collection Facilities in accordance with reasonable rules and regulations of E-S-A so that only Acceptable Wastewater is delivered to E-S-A for treatment in the Regional Facility. Each Participant shall adopt and enforce appropriate regulations for the use of Collection Facilities within its service area so as to assure compliance with such rules and regulations.

Article III

Regional Facility

Section 3.1 Design and Construction:

E-S-A will make, where appropriate, application for grants and loans for the design and construction of the

Regional Facility. Upon approval of such grants and loans to the extent of 100% of eligible costs and the availability of such additional funds as may be necessary, E-S-A shall proceed with design and construction of the Regional Facility in order that it may be placed in operation as soon as may be practicable.

Section 3.2 - Financing:

E-S-A shall proceed in a timely manner to secure financing for design costs and other expenses in connection with the Regional Facility. E-S-A shall, with all reasonable dispatch after construction costs are established and grants in amounts satisfactory to it are approved, issue and sell bonds pursuant to the Act in an amount, together with other available funds, which will be sufficient to pay the Cost of the Regional Facility, including the repayment of any interim financing, provided, however, that nothing contained in this Agreement shall require E-S-A to issue Bonds other than upon terms deemed reasonable by it. E-S-A shall diligently pursue all available grants and zero interest loans as the means to finance the Regional facility.

Article IV

Allocation of Capacity

Section 4.1 Initial Allocation of Capacity:

The Regional Facility will have an initial design capacity of 0.5 million gallons per day, which is hereby allocated to each Participant in an amount equal to its Allocated Capacity. The initial Allocated Capacities are based on records furnished by the Participants, the Preliminary Engineering Study for the project, and

the attached Memoranda or Understanding, which are hereby made part of this Agreement by reference.

The initial Allocated Capacities shall be reviewed annually on each March 1, as they pertain to operation and maintenance cost only, and any new allocated Capacities will be effective for the twelve months beginning the following July 1. The first review will be conducted during the first year of operation of the Regional Facility.

Revised Allocated Capacities shall be determined from the flow records of the Authority. The calculations shall then be made and submitted to each Participant for review together with the proposed budget and user rates.

The E-S-A Board shall hold a public hearing on the allocations and user rates to allow all Participants an opportunity to provide input.

After considering all input the Board shall adopt the Allocated Capacities and user rates to be effective for the new fiscal year beginning on July 1.

Section 4.2 Reallocation of Capacity:

Any Participant (sometimes referred to in this Section as the Grantor) may reallocate any excess portion of its Allocated Capacity to any other Participant (sometimes referred to in this Section as the Grantee). When it has been determined that any Participant has a need for an additional Allocated Capacity, either through its own request or by the E-S-A flow records, the following procedure shall be followed: The E-S-A staff shall proceed to review and analyze the E-S-A flow records to determine such Participant's level of usage of existing allocated Capacity as well as any documentation showing needs for

additional Allocated Capacity. The staff shall further review the E-S-A flow records to determine if any Participants have unused flow allocations, by using the following formula: (Existing Participant Allocated Capacity -(Sum of Existing recorded flow)(2-year average) +5% reserve + documented projected flow needs) = Unused allocation.) If the records show unused allocations are available the E-S-A staff shall proceed to meet with the Participant having excess excess allocations, or such Participant's Staff, to review the possibility of reallocation of any unused Allocated Capacity. If there is no documentation showing need or projected need for the unused allocated Capacity, the E-S-A staff shall proceed to recommend to the E-S-A Board that the requested reallocation of flow be approved. If unused allocated Capacity is to be reallocated from more than on Participant, then the amount to be reallocated from each such Participant shall equal the total amount to be reallocated multiplied by such Participant's Allocated Capacity subject to reallocation, divided by the Total Allocated Capacity subject to reallocation from all such Participants. Priority needs of the Service Area must be met first. The E-S-A Board shall proceed to reallocate Allocated Capacity unless reasonable cause can be shown that it should not. No such reallocation of Allocated Capacity may be undertaken and implemented with out the consent of any Participant. All Participants shall be notified immediately upon any reallocation.

The cost basis for such reallocation shall be as follows: The E-S-A Staff shall determine from its financial records the amount of "Debt Retirement Costs" and "Operation and Maintenance Costs", each as defined in Section 6.2, that are applicable to the stated flow reallocation and

the total of said amount shall be deducted from the Grantor's allocated costs and transferred to the Grantee' allocated costs. This shall include all prior debt payments and reserved made by the Grantor on the unused allocation. The Grantee shall have the option to make a cash payment for the debt portion of the allocation. Otherwise, these costs will be included in the rate structure, and the prior costs refunded to the Grantor on a quarterly basis.

Section 4.3 Observance of Allocated Capacity:

No Participant shall consistently deliver wastewater to the Regional Facility in an amount in excess of its Allocated Capacity. At such time as any Participant is advised by E-S-A that the average flow of such Participant for any three consecutive months has reached 95% of its Allocated Capacity, such Participant shall take such steps as shall be permitted by law and necessary or desirable to comply with applicable regulations and orders of regulatory bodies related to the level of average daily flow, and to comply with the provisions of this Agreement regarding the delivery of wastewater by such Participant to the Regional Facility.

Section 4.4 Enlargement of Regional Facility:

In the event any one or more Participants advised E-S-A of a need for wastewater treatment capacity in excess of its Allocated Capacity, and such need cannot be met by reallocation pursuant to Section 4.2, E-S-A shall take appropriate action to create additional capacity at the Regional Facility on the following basis: The E-S-A Board shall consult with its engineers to determine the most cost effective and efficient

expansion increment that can be constructed. If this increment is identical with the requested amount, the Board shall proceed with the expansion, and the total costs associated with this expanded capacity, including operation and maintenance, shall be allocated to the requesting Participant or Participants. Should the most cost effective and efficient expansion increment be larger than the amount requested, E-S-A shall notify all its Participants of the requested expansion and of its determination that a larger increment should be constructed, and the costs of any such expansion shall be distributed in the following manner: The requesting Participant shall pay all costs for the requested allocation, plus its proportionate share of the newly constructed excess capacity based on the percentage its Allocated Capacity bears to the total then existing capacity of the Regional Facility. The remaining portion of the newly constructed excess capacity, together with the costs thereof, shall be allocated to the remaining Participants on the basis of the percentages their Allocated Capacities bear to the total then-existing capacity of the Regional Facility. Any future reallocation needs shall be taken proportionately from each Participant having excess capacity, calculated in the same manner as set forth in Section 4.2. Only the Participants, shall have the right to cause the creation of additional capacity pursuant to this Section.

Article V

DELIVERY OF WASTEWATER AND OPERATION OF REGIONAL FACILITY

Section 5.1 Delivery, Acceptance and Treatment of Wastewater:

Upon completion of the Regional Facility and upon being advised that it has been approved for regular treatment of wastewater, each Participant shall delivery or cause to be delivered to E-S-A at Points of Delivery all Acceptable Wastewater collected by it in the Service Area, and shall not permit or provide for the final treatment of wastewater in the Service Area in any other manner, except in cases where valid discharge permits are presently in place. E-S-A shall accept and treat such wastewater delivered to it by the Participants up to their respective Allocated Capacities.

Section 5.2 Operation of Regional Facility:

E-S-A shall operate and maintain the Regional Facility in a efficient and economical manner, making all necessary and proper repairs, replacements and renewals, consistent with good business and operating practices for comparable facilities and in accordance with applicable standards of regulatory bodies. Treatment of wastewater shall meet all applicable standards.

Section 5.3 Rules and Regulations:

E-S-A shall adopt and enforce such reasonable rules and regulations as may be necessary or desirable to ensure the efficient operation and maintenance of the Regional Facility and compliance with all applicable orders and regulations of regulatory bodies. Each Participant shall observe all such rules and regulations.

Article VI

CHARGES TO PARTICIPANTS

Section 6.1 Charges in General:

E-S-A shall fix the Monthly User Charges at such levels as may be necessary to provide funds, together with other available funds, sufficient at all times (a) to pay the principal of, the premium, if any, and interest on the Bonds, as the same become due, (b) to pay the cost of operation, maintenance and replacement of the Regional Facility, and (c) to maintain reasonable reserves for debt service and for replacements and improvements.

Section 6.2 Monthly User Charge:

The Monthly User Charge for each participant shall consist of the sum of such Participant's allocable (a) "debt retirement costs," based on the ratio which the Allocated Capacity of such Participant bears to the total capacity of the Regional Facility as set forth in the Memorandum of Understanding between Participants, (b) operation and maintenance costs," based on the ratio which the actual flow at the one or more Points of Delivery for such Participant bears to the total flow through all Points of Delivery, and (c) "the surcharge", if any. "Debt Retirement Costs" shall mean costs of paying principal of and premium, if any, and interest on Bonds as the same become due and providing reasonable reserves therefor. "Operation and Maintenance Costs" shall mean the sum of the expenses for administration of E-S-A, the ownership, operation and maintenance of the Regional Facility, replacements and the amount of any "Operation and Maintenance Costs" overruns for the previous year, less any revenue derived or to be derived from the sale of wastewater or products derived from the treatment of wastewater. "Surcharge" shall mean any charge for abnormal waste strength, volume or

characteristics that may be determined by E-S-A in accordance with its rules and regulations.

The Authority shall hold a public hearing on the proposed Monthly User Charge and each Participant shall be afforded the opportunity of inquiry and suggestion. After such public hearing, the E-S-A Board shall proceed to adopt the Monthly User Charge and such determination shall be binding in the absence of manifest error.

Section 6.3 Billing and Payment of Monthly User Charges:

E-S-A shall determine the Monthly User Charge by March 1 of each year for the twelve months beginning the following July 1. The Monthly User Charge as determined shall not be changed during such twelve month period except to correct an error in calculation or as may be necessary to prevent a default in payment of the principal of or the premium, if any, or interest on Bonds, or to prevent a default under the resolution or agreement authorizing or securing Bonds. Bills shall be submitted to the Participants on the first working day of each month or as soon thereafter as may be practicable. Payment shall be due 15 days after the date of the bill. Amounts unpaid within 30 days after the date of the bill shall accrue interest at the rate of 1/2% per month, or at such higher rate as E-S-A may determine but not in excess of the maximum rate permitted by law until paid.

Section 6.4 Payment of Charges; Limited Obligations:

Each Participant shall pay promptly when due the Monthly User Charge billed to it; provided, however, that each Participant shall be obligated to pay the Monthly User Charge only from the revenues received

from its sewerage system available for such purpose, including availability, connection, consumption and service charges or fees or any other revenues of such system. Each Participant shall adopt such revenue generation measures as may be reasonably necessary and permitted by law to secure such funds, and shall revise such revenue measures as may be necessary from time to time. Nothing in this Agreement shall constitute a pledge of the faith and credit or the taxing power of any Participant.

Section 6.5 Meters:

E-S-A shall provide meters at each Point of Delivery to determine and record on a continuing basis the quantities of wastewater delivered by each Participant. Meters shall be tested by E-S-A for accuracy not less frequently than once every year. E-S-A shall test any meter for accuracy upon request of any Participant; provided, however, that if such meter shall be found to be accurate within a range of plus or minus 5%, the cost of the test shall be borne by the requesting Participant. If any meter should fail to record correctly the flow of wastewater, E-S-A shall estimate the amount of flow on the basis of prior experience.

Article VII

Duration of Agreement

Section 7.1 Initial Term:

The initial term of this Agreement shall be twenty years next following its date; provided, however, that if on such date the Bonds have not been paid or provisions have not been made for their payment, the initial term of this Agreement shall continue until the Bonds shall

have been paid or provisions shall have been made for their payment.

Section 7.2 Continuation of Agreement

This Agreement shall continue in effect beyond the initial term provided above until terminated buy any of the parties hereto. No such termination shall become effective until two years after written notice thereof shall have been given to all the other parties hereto.

Article VIII

Miscellaneous

Section 8.1 Amendments:

The Agreement may not be amended, modified or otherwise altered without the express written consent of all parties hereto, except that a Participant's Allocated Capacity may be changed by the E-S-A Board pursuant to Section 4.2. In addition, the parties hereto recognize that this Agreement will constitute an essential part of E-S-A's financing plan and that, after Bonds have been sold, this Agreement cannot be amended in any manner that will impair or adversely affect the security afforded hereby for the payment of the principal of and premium, if any, and interest on bonds, or otherwise than in a manner consistent with the resolution or agreement authorizing or securing Bonds.

Section 8.2 Books and Records:

E-S-A shall keep proper books and records in accordance with generally accepted accounting principles applicable to governmental entities such as E-S-A, which shall be available for inspection at all reasonable times by the Participants through their duly authorized agents. E-S-A shall cause an annual audit of its books and records to

be made by an independent certified public accountant at the end of each fiscal year and certified copies therefore to be filed promptly with the other parties hereto. E-S-A's fiscal year begins on July 1 and ends on the following June 30.

Section 8.3 Successors and Assigns:

This Agreement shall be binding upon, insure to the benefit of and be enforceable by the parties hereto and their respective successors and assigns.

Section 8.4 Severability:

If any provision of this Agreement shall be held invalid or unenforceable by any court of competent jurisdiction, such holding shall not affect any other provision hereof.

Section 8.5 Counterparts:

This Agreement shall be executed in Several counterparts, any of which shall be regarded for all purposes as an original.

acomac1.s_a

DRAFT

SERVICE AGREEMENT

TOWN OF ONANCOCK

AND

EASTERN SHORE REGIONAL WASTEWATER TREATMENT AUTHORITY

DRAFT

THIS SERVICE AGREEMENT, made and entered into as of the _____ day of _____ by and between the TOWN OF ACCOMAC, VIRGINIA, THE TOWN OF MELFA, VIRGINIA, and the TOWN OF ONLEY, VIRGINIA, municipal corporations of the Commonwealth of Virginia, ACCOMACK COUNTY, VIRGINIA, a political subdivision of the Commonwealth of Virginia, acting through its Board of Supervisors, and THE TOWN OF ONANCOCK,VIRGINIA (ONANCOCK), a municipal corporation of the Commonwealth of Virginia;

WITNESSETH THAT:

WHEREAS, the parties hereto agree that the health and safety of the residents within the Service Area, as hereinafter defined, require that the rivers and streams of the Service Area be clean and free from obnoxious domestic, commercial and industrial wastes and that the citizens thereof be provided with safe and reliable wastewater treatment; and

WHEREAS, the parties hereto are in agreement that the above mentioned needs can best be met by a regional wastewater treatment facility to serve the Service Area; and

WHEREAS, ONANCOCK, with the approval of the other parties hereto, has been designated by the Virginia State Water Control Board and the United States Environmental Protection Agency as the entity to provide wastewater treatment services for the Service area; and

WHEREAS, ONANCOCK has contracted with the firm of Dewberry and Davis, Richmond, Virginia, to prepare the engineering plans and specifications for a regional wastewater treatment facility and transmission lines with a capacity of 0.5 million gallons per day, such capacity having been determined to be adequate to treat wastewater

expected from the Service Area; and

WHEREAS, the other parties hereto desire that ONANCOCK receive their normal domestic and acceptable commercial and industrial wastewater originating in their individual service areas within the Service Area, and treat such wastewater at such regional facility; and

WHEREAS, it is the intention of the parties hereto that the capacity of such regional facility be allocated among each of the parties hereto for their respective service areas within the service area in a fair and equitable manner consistent with present and anticipated future needs of the service area, and that the widest degree of flexibility in future allocations among the respective service area be available to the end that such regional facility shall be truly regional in scope and operation and shall operate to the mutual benefit of all the parties hereto; and

WHEREAS, the parties hereto desire to enter into this Agreement for the purpose of establishing an equitable basis for sharing the costs of constructing and operating such regional facility, and recognize that this Agreement will be used by ONANCOCK to facilitate obtaining financing for a portion of the costs of such construction;

NOW, THEREFORE, for and in consideration of the premises and the mutual covenants and agreements herein contained, the parties hereto covenant and agree as follows:

Article 1

DEFINITIONS AND WARRANTIES

Section 1.1 Definitions: The following terms as used in this Agreement shall have the following meanings:

"Abnormal Wastewater" shall mean (a) wastewater that is not Acceptable Wastewater, and (b) wastewater flow in excess of Allocated Capacity.

"Acceptable Wastewater" shall mean wastewater which meets the requirements of ONANCOCK's sewer use regulations, the Participants' sewer use ordinances and any applicable requirements of EPA or the State Waster Control Board.

"Act" shall mean the Virginia Water and Sewer Authorities Act (Chapter 28, Title 15.1, Code of Virginia of 1950, as amended).

"Agreement" shall mean this Service Agreement, including all amendments and supplements hereto.

Allocated Capacity" shall mean for any Participant the amount of wastewater it is entitled to deliver to the Regional Facility pursuant to this Agreement or pursuant to any agreement between Participants in accordance with Section 4.2. The initial allocated capacity for each participant shall be as follows, expressed in millions of gallons per day:

Town of Onancock	0.212
Town of Accomc	0.071
Town of Melfa	0.054
Town of Onley	0.090
Accomac County	0.073

"Bonds" shall mean revenue bonds issued by ONANCOCK to obtain funds, together with other available funds, to pay the cost of constructing the Regional Facility and shall include any notes or other obligations issued for such purpose, including any obligations issued to refund any such obligations.

"Collection Facilities" shall mean any facilities of any Participant used or to be used in connection with collecting and delivering wastewater to ONANCOCK at Points of Delivery, including but no limited to collector and interceptor lines, pump stations and force mains, but shall not include any part of the Regional Facility.

"COST", when used with respect to the Regional Facility, shall have the meaning specified in Section 62.1-224, Code of Virginia of 1950, as amended, or any successor provision.

"EPA" shall mean the United States Environmental Protection Agency or any agency of the United States of America which may succeed to its duties.

"Monthly User Charge" shall mean the charge payable by the Participants as determined in accordance with Section 6.2.

"Participants" shall mean the local public bodies expected to deliver wastewater to the Regional Facility, which are the Town of Onancock, the Town of Accomac, The Town of Melfa, The Town of Onley and Accomack County, Virginia.

"Plant" shall mean the 0.5 million gallons per day wastewater treatment plant planned as part of the Regional Facility.

"Points of Delivery" shall mean those points for the delivery of wastewater to the Regional Facility as may be agreed upon from time to

time by ONANCOCK and the one or more Participants delivering or proposing to deliver wastewater at any such point. Initially, the Points of Delivery shall be as follows:

(a) For Wastewater delivery by the Town of Onancock, the meter and monitoring equipment shall be installed near the _____

_____

The Town of Onancock shall control the collector services between ___

_____, and the metering point.

(b) For wastewater delivered by the Town of Accomac_____

_____

(c) For wastewater delivered by the Town of Melfa, _____

_____

(d) For wastewater delivered by Town of Onley,_____

_____

(e) For wastewater delivered by Accomack County, eight points to be determined by the Accomack County Board of Supervisors.

"Regional Facility" shall mean the ONANCOCK Wastewater Treatment Facility and all associated facilities to be constructed and owned by ONANCOCK, as the same may from time to time exist. Such facilities shall include, but shall not be limited to the Plant itself, the outfall line from the wastewater treatment plant to the River and all associated metering and telemetering equipment.

"Service Area" shall mean the areas of the _____ drainage basin and other contiguous areas served from time to time by the Participants.

"State Water Control Board"or "SWCB" shall mean the Virginia State Water Control Board or any agency of the Commonwealth of Virginia which may succeed to its duties.

Section 1.2 Representations and Warranties:

Each of the parties hereto makes the following representations and warranties, all of which shall continue for the duration of this Agreement:

(a) It has full power and authority to enter into this Agreement and to consummate and carry out the transactions contemplated by this Agreement. It has taken or will take all action required by this Agreement, the Act and other applicable laws in connection therewith.

(b) It has duly authorized the execution and delivery of this Agreement.

(c) The execution and delivery of this Agreement and the performance of its obligations hereunder are within its corporate powers and will not conflict with, or constitute a breach or result in a violation of, (i) any Federal or Virginia Constitutional or statutory provision, (ii) in any material respect, any agreement or other instrument to which such party is a party or by which is bound, (iii) any order, rule, regulation, decree or ordinance of any court, government or governmental authority having jurisdiction over it or its property, and (iv) for each of the Town of Onancock, The Town of Accomac,The Town of Melfa, The Town of Onley and Accomack County, its charter.

(d) There is no litigation at law or in equity or any proceeding before any governmental agency pending or, to its knowledge, threatened with

respect to (i) its existence, (ii) its authority to execute and deliver this Agreement, (iii) the validity or enforceability of this Agreement or the transactions contemplated hereby, (iv) the title of its officers who are executing this Agreement, or (v) any authority or proceedings relating to its execution and delivery of this Agreement.

(e) It is a duly organized and validly existing public body politic and corporate.

Article II

PARTICIPANTS' COLLECTION FACILITIES

Section 2.1 Collection Facilities Generally:

The parties hereto recognize that the Regional Facility can be operated only in connection with Collection Facilities provided by the Participants. Certain of the Participants already have Collection Facilities, which in some instance must be modified or expanded in order to utilize the Regional Facility, while other participants have no collection facilities at all. The Collection Facilities shall be the responsibility of the Participants.

Section 2.2 Excessive Infiltration/Inflow

Each participant shall maintain and/or upgrade existing and future Collection Facilities so that excessive infiltration/inflow, as determined by ONANCOCK from time to time, will not be delivered to the Regional Facility. The Participants have agreed that infiltration/inflow causing wastewater in excess of a Participant's allocated capacity to be delivered to the Regional Facility will be

considered excessive to the extent of such excess over Allocated Capacity. ONANCOCK has submitted to SWCB for its approval a schedule for removing any excessive infiltration/inflow in its existing Collection Facilities and shall complete such removal prior to completion of construction of the Regional Facility.

Section 2.3 Operation of Collection Facilities:

Each Participant shall operate its Collection Facilities in accordance with reasonable rules and regulations of ONANCOCK so that only Acceptable Wastewater is delivered to ONANCOCK for treatment in the Regional Facility. Each Participant shall adopt and enforce appropriate regulations for the use of Collection Facilities within its service area so as to assure compliance with such rules and regulations.

Article III

Regional Facility

Section 3.1 Design and Construction:

ONANCOCK will make, where appropriate, application for grants and loans for the design and construction of the Regional Facility. Upon approval of such grants and loans to the extent of 100% of eligible costs and the availability of such additional funds as may be necessary, ONANCOCK shall proceed with design and construction of the Regional Facility in order that it may be placed in operation as soon as may be practicable.

Section 3.2 - Financing:

ONANCOCK shall proceed in a timely manner to secure financing for design costs and other expenses in connection with the Regional Facility. ONANCOCK shall, with all reasonable dispatch after

construction costs are established and grants in amounts satisfactory to it are approved, issue and sell bonds pursuant to the Act in an amount, together with other available funds, which will be sufficient to pay the Cost of the Regional Facility, including the repayment of any interim financing, provided, however, that nothing contained in this Agreement shall require ONANCOCK to issue Bonds other than upon terms deemed reasonable by it. ONANCOCK shall diligently pursue all available grants and zero interest loans as the means to finance the Regional facility.

Article IV

Allocation of Capacity

Section 4.1 Initial Allocation of Capacity:

The Regional Facility will have an initial design capacity of 0.5 million gallons per day, which is hereby allocated to each Participant in an amount equal to its Allocated Capacity. The initial Allocated Capacities are based on records furnished by the Participants and the attached Memoranda of Understanding, which are hereby made part of this Agreement by reference.

The initial Allocated Capacities shall be reviewed annually on each March 1, as they pertain to operation and maintenance cost only, and any new allocated Capacities will be effective for the twelve months beginning the following July 1. The first review will be conducted during the first year of operation of the Regional Facility.

Revised Allocated Capacities shall be determined from the flow records of the Authority. The calculations shall then be made and submitted to each Participant for review together with the proposed

budget and user rates.

ONANCOCK shall hold a public hearing on the allocations and user rates to allow all Participants an opportunity to provide input.

After considering all input ONANCOCK shall adopt the Allocated Capacities and user rates to be effective for the new fiscal year beginning on July 1.

Section 4.2 Reallocation of Capacity:

Any Participant (sometimes referred to in this Section as the Grantor) may reallocate any excess portion of its Allocated Capacity to any other Participant (sometimes referred to in this Section as the Grantee). When it has been determined that any Participant has a need for an additional Allocated Capacity, either through its own request or by the flow records, the following procedure shall be followed: ONANCOCK shall proceed to review and analyze the flow records to determine such Participant's level of usage of existing allocated Capacity as well as any documentation showing needs for additional Allocated Capacity. The staff shall further review the flow records to determine if any Participants have unused flow allocations, by using the following formula: (Existing Participants Allocated Capacity) -(Sum of Existing recorded flow)(2-year average) +5% reserve + documented projected flow needs) = Unused allocation.) If the records show unused allocations are available ONANCOCK shall proceed to meet with the Participant having excess excess allocations, or such Participant's Staff, to review the possibility of reallocation of any unused Allocated

Capacity. If there is no documentation showing need or projected need for the unused allocated Capacity, ONANCOCK shall proceed to reallocate the flow. If unused allocated Capacity is to be reallocated from more than on Participant, then the amount to be reallocated from each such Participant shall equal the total amount to be reallocated multiplied by such Participant's Allocated Capacity subject to reallocation, divided by the Total Allocated Capacity subject to reallocation from all such Participants. Priority needs of the Service Area must be met first. ONANCOCK shall proceed to reallocate Allocated Capacity unless reasonable cause can be shown that it should not. No such reallocation of Allocated Capacity may be undertaken and implemented with out the consent of any Participant. All Participants shall be notified immediately upon any reallocation.

The cost basis for such reallocation shall be as follows: ONANCOCK Staff shall determine from its financial records the amount of "Debt Retirement Costs" and "Operation and Maintenance Costs", each as defined in Section 6.2, that are applicable to the stated flow reallocation and the total of said amount shall be deducted from the Grantor's allocated costs and transferred to the Grantee' allocated costs. This shall include all prior debt payments and reserved made by the Grantor on the unused allocation. The Grantee shall have the option to make a cash payment for the debt portion of the allocation. Otherwise, these costs will be included in the rate structure, and the prior costs refunded to the Grantor on a quarterly basis.

Section 4.3 Observance of Allocated Capacity:

No Participant shall consistently deliver wastewater to the

Regional Facility in an amount in excess of its Allocated Capacity. At such time as any Participant is advised by ONANCOCK that the average flow of such Participant for any three consecutive months has reached 95% of its Allocated Capacity, such Participant shall take such steps as shall be permitted by law and necessary or desirable to comply with applicable regulations and orders of regulatory bodies related to the level of average daily flow, and to comply with the provisions of this Agreement regarding the delivery of wastewater by such Participant to the Regional Facility.

Section 4.4 Enlargement of Regional Facility:

In the event any one or more Participants advises ONANCOCK of a need for wastewater treatment capacity in excess of its Allocated Capacity, and such need cannot be met by reallocation pursuant to Section 4.2, ONANCOCK shall take appropriate action to create additional capacity at the Regional Facility on the following basis: ONANCOCK shall consult with its engineers to determine the most cost effective and efficient expansion increment that can be constructed. If this increment is identical with the requested amount, they shall proceed with the expansion, and the total costs associated with this expanded capacity, including operation and maintenance, shall be allocated to the requesting Participant or Participants. Should the most cost effective and efficient expansion increment be larger than the amount requested, ONANCOCK shall notify all its Participants of the requested expansion and of its determination that a larger increment should be constructed, and the costs of any such expansion shall be distributed in the following manner: The requesting Participant shall pay all costs for

the requested allocation, plus its proportionate share of the newly constructed excess capacity based on the percentage its Allocated Capacity bears to the total then existing capacity of the Regional Facility. The remaining portion of the newly constructed excess capacity, together with the costs thereof, shall be allocated to the remaining Participants on the basis of the percentages their Allocated Capacities bear to the total then-existing capacity of the Regional Facility. Any future reallocation needs shall be taken proportionately from each Participant having excess capacity, calculated in the same manner as set forth in Section 4.2. Only the Participants, shall have the right to cause the creation of additional capacity pursuant to this Section.

Article V

DELIVERY OF WASTEWATER AND OPERATION OF REGIONAL FACILITY

Section 5.1 Delivery, Acceptance and Treatment of Wastewater:

Upon completion of the Regional Facility and upon being advised that it has been approved for regular treatment of wastewater, each Participant shall delivery or cause to be delivered to ONANCOCK at Points of Delivery all Acceptable Wastewater collected by it in the Service Area, and shall not permit or provide for the final treatment of wastewater in the Service Area in any other manner, except in cases where valid discharge permits are presently in place. ONANCOCK shall accept and treat such wastewater delivered to it by the Participants up to their respective Allocated Capacities.

Section 5.2 Operation of Regional Facility:

ONANCOCK shall operate and maintain the Regional Facility in a efficient and economical manner, making all necessary and proper repairs, replacements and renewals, consistent with good business and operating practices for comparable facilities and in accordance with applicable standards of regulatory bodies. Treatment of wastewater shall meet all applicable standards.

Section 5.3 Rules and Regulations:

ONANCOCK shall adopt and enforce such reasonable rules and regulations as may be necessary or desirable to ensure the efficient operation and maintenance of the Regional Facility and compliance with all applicable orders and regulations of regulatory bodies. Each Participant shall observe all such rules and regulations.

Article VI

CHARGES TO PARTICIPANTS

Section 6.1 Charges in General:

ONANCOCK shall fix the Monthly User Charges at such levels as may be necessary to provide funds, together with other available funds, sufficient at all times (a) to pay the principal of, the premium, if any, and interest on the Bonds, as the same become due, (b) to pay the cost of operation, maintenance and replacement of the Regional Facility, and (c) to maintain reasonable reserves for debt service and for replacements and improvements.

Section 6.2 Monthly User Charge:

The Monthly User Charge for each participant shall consist of the sum of such Participant's allocable (a) "debt retirement costs," based

on the ratio which the Allocated Capacity of such Participant bears to the total capacity of the Regional Facility as set forth in the Memorandum of Understanding between Participants, (b) operation and maintenance costs," based on the ratio which the actual flow at the one or more Points of Delivery for such Participant bears to the total flow through all Points of Delivery, and (c) "the surcharge", if any. "Debt Retirement Costs" shall mean costs of paying principal of and premium, if any, and interest on Bonds as the same become due and providing reasonable reserves therefor. "Operation and Maintenance Costs" shall mean the sum of the expenses for administration of ONANCOCK, the ownership, operation and maintenance of the Regional Facility, replacements and the amount of any "Operation and Maintenance Costs" overruns for the previous year, less any revenue derived or to be derived from the sale of wastewater or products derived from the treatment of wastewater. "Surcharge" shall mean any charge for abnormal waste strength, volume or characteristics that may be determined by ONANCOCK in accordance with its rules and regulations.

The Authority shall hold a public hearing on the proposed Monthly User Charge and each Participant shall be afforded the opportunity of inquiry and suggestion. After such public hearing, ONANCOCK shall proceed to adopt the Monthly User Charge and such determination shall be binding in the absence of manifest error.

Section 6.3 Billing and Payment of Monthly User Charges:

ONANCOCK shall determine the Monthly User Charge by March 1 of each year for the twelve months beginning the following July 1. The Monthly User Charge as determined shall not be changed during such twelve month

period except to correct an error in calculation or as may be necessary to prevent a default in payment of the principal of or the premium, if any, or interest on Bonds, or to prevent a default under the resolution or agreement authorizing or securing Bonds. Bills shall be submitted to the Participants on the first working day of each month or as soon thereafter as may be practicable. Payment shall be due 15 days after the date of the bill. Amounts unpaid within 30 days after the date of the bill shall accrue interest at the rate of 1/2% per month, or at such higher rate as ONANCOCK may determine but not in excess of the maximum rate permitted by law until paid.

Section 6.4 Payment of Charges; Limited Obligations:

Each Participant shall pay promptly when due the Monthly User Charge billed to it; provided, however, that each Participant shall be obligated to pay the Monthly User Charge only from the revenues received from its sewerage system available for such purpose, including availability, connection, consumption and service charges or fees or any other revenues of such system. Each Participant shall adopt such revenue generation measures as may be reasonably necessary and permitted by law to secure such funds, and shall revise such revenue measures as may be necessary from time to time. Nothing in this Agreement shall constitute a pledge of the faith and credit or the taxing power of any Participant.

Section 6.5 Meters:

ONANCOCK shall provide meters at each Point of Delivery to determine and record on a continuing basis the quantities of wastewater delivered by each Participant. Meters shall be tested by ONANCOCK for

accuracy not less frequently than once every year. ONANCOCK shall test any meter for accuracy upon request of any Participant; provided, however, that if such meter shall be found to be accurate within a range of plus or minus 5%, the cost of the test shall be borne by the requesting Participant. If any meter should fail to record correctly the flow of wastewater, ONANCOCK shall estimate the amount of flow on the basis of prior experience.

Article VII

Duration of Agreement

Section 7.1 Initial Term:

The initial term of this Agreement shall be twenty years next following its date; provided, however, that if on such date the Bonds have not been paid or provisions have not been made for their payment, the initial term of this Agreement shall continue until the Bonds shall have been paid or provisions shall have been made for their payment.

Section 7.2 Continuation of Agreement

This Agreement shall continue in effect beyond the initial term provided above until terminated buy any of the parties hereto. No such termination shall become effective until two years after written notice thereof shall have been given to all the other parties hereto.

Article VIII

Miscellaneous

Section 8.1 Amendments:

The Agreement may not be amended, modified or otherwise altered without the express written consent of all parties hereto, except that a Participant's Allocated Capacity may be changed by ONANCOCK pursuant

to Section 4.2. In addition, the parties hereto recognize that this Agreement will constitute an essential part of ONANCOCK's financing plan and that, after Bonds have been sold, this Agreement cannot be amended in any manner that will impair or adversely affect the security afforded hereby for the payment of the principal of and premium, if any, and interest on bonds, or otherwise than in a manner consistent with the resolution or agreement authorizing or securing Bonds.

Section 8.2 Books and Records:

ONANCOCK shall keep proper books and records in accordance with generally accepted accounting principles applicable to governmental entities such as ONANCOCK, which shall be available for inspection at all reasonable times by the Participants through their duly authorized agents. ONANCOCK shall cause an annual audit of its books and records to be made by an independent certified public accountant at the end of each fiscal year and certified copies therefore to be filed promptly with the other parties hereto. ONANCOCK's fiscal year begins on July 1 and ends on the following June 30.

Section 8.3 Successors and Assigns:

This Agreement shall be binding upon, insure to the benefit of and be enforceable by the parties hereto and their respective successors and assigns.

Section 8.4 Severability:

If any provision of this Agreement shall be held invalid or unenforceable by any court of competent jurisdiction, such holding shall not affect any other provision hereof.

Section 8.5 Counterparts:

This Agreement shall be executed in Several counterparts, any of which shall be regarded for all purposes as an original.

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ACCOMACK-NORTHAMPTON PLANNING DISTRICT COMMISSION
P.O. BOX 417
ACCOMAC, VIRGINIA 23301
(804) 787-2936
FAX (804) 787-4221

January 25, 1993

O. Lee Maddox, III, P.E.
Dewberry and Davis
9200 Arboretum Parkway
Suite 130
Richmond, VA 23236

JAN 26 [illegible]

Dear Lee:

Enclosed is the Contract for Sewerage Service between the Town of Onancock and Accomack County Industrial Development Authority.

Please call me if you have any questions concerning this material.

Sincerely yours,

James M. McGowan
Director of Planning

Enclosure

cc: Paul F. Berge, AICP
Executive Director

CONTRACT FOR SEWERAGE SERVICE

Between

TOWN OF ONANCOCK, VIRGINIA

And

INDUSTRIAL DEVELOPMENT AUTHORITY OF THE COUNTY OF ACCOMACK

THIS CONTRACT is made as of the 17th day of May, 1979, between the TOWN OF ONANCOCK, VIRGINIA, hereinafter called "Town," and THE INDUSTRIAL DEVELOPMENT AUTHORITY OF THE COUNTY OF ACCOMACK, hereinafter called "Authority."

ARTICLE I

GENERAL RECITALS

1.1 The Authority needs facilities for the treatment and disposal of sewage from its Business and Industrial Park and from businesses, industries and other user classes with whom the Authority may contract from time to time.

1.2 The Town intends to operate its sewerage system and to accept sewage from the Authority and those with whom the Authority contracts outside the Town pursuant to this contract.

1.3 The Authority and the Town are authorized to make this contract under Section 15.1-320 of the Code of Virginia of 1950, as amended from time to time.

1.4 The Town shall use the fees and charges received under this contract for the maintenance and operation of the Town's sewerage system and for the payment of eight percent (8%) of the local share of the funds necessary to construct the Town's sewerage facilities, based on reserving to the Authority eight percent (8%) of the volumetric capacity of the Town's sewage treatment plant (29,000 GPD). The local share of funds

necessary to construct the Town's sewerage facilities is $225,000.00, and the present volumetric capacity of the plant is 250,000 gallons per day.

ARTICLE II

GENERAL AGREEMENT

2.1 The Town agrees to receive into its sewerage system and dispose of sewage discharged by the Authority and those with whom the Authority contracts as provided and limited by the terms and conditions of this contract.

ARTICLE III

DEFINITIONS

3.1 Whenever used in this contract, unless a different meaning clearly appears in the context, the following terms, whether used in the singular or plural, shall be given the following respective meanings:

3.2 TOWN'S SYSTEM - the facilities for receiving, transporting, treating and disposing of sewage.

3.3 BOD (denoting Biochemical Oxygen Demand) - the quantity of oxygen utilized in the biochemical oxidation of organic matter under standard laboratory procedure in five (5) days at 20° C., expressed in milligrams per liter (mg/l).

3.4 GARBAGE - solid waste from the domestic and

commercial preparation, cooking and dispensing of food, and from the handling, storage and sale of produce and other foods.

3.5 GREASE - fats, waxes, oils and similar nonvolatile materials in waste water which are extracted by hexane or trichlorotrifluoroethane from an acidified sample using the "Soxhlet method."

3.6 INDUSTRIAL WASTE - liquid and water-carried waste from industrial processes as distinct from sanitary sewage.

3.7 MAINTENANCE AND OPERATION EXPENSE - all costs of repairs and replacements for which no special fund is created, including, but not limited to, supervision, engineering, accounting, auditing, legal, supplies, services and equipment necessary for proper operation and maintenance of the Town's sewerage system.

3.8 METER - device used to measure sewage flow with reasonable accuracy.

3.9 MONTH - calendar month.

3.10 pH - the logarithm of the reciprocal of the weight of hydrogen ions in grams per liter of solution.

3.11 SHREDDED GARBAGE - garbage that has been shredded to such degree that all particles will be carried freely under the flow conditions normally prevailing in public

sewers with no particles greater than one-half ($\frac{1}{2}$) inch in any dimension.

3.12 SANITARY SEWAGE - liquid and water-carried waste discharged from the sanitary toilets of dwellings and other buildings.

3.13 SEWAGE - liquid and water-carried waste and refuse matter from residences, business and industrial establishments.

3.14 SEWAGE TREATMENT PLANT - devices and structures used for treating sewage to rid it of impurities and polluting matter.

3.15 SEWER - pipe or conduit for carrying sewage.

3.16 SUSPENDED SOLIDS - solids that either float on the surface of or are suspended in water, sewage or other liquids and which are removable by filtering.

3.17 When the terms "will," "shall" and "may" are used, "will" and "shall" are to be construed as mandatory and "may" as permissive.

ARTICLE IV

QUALITY

4.1 In order to permit the Town to treat and dispose of sewage properly, to protect the public health and

to cooperate with other governmental agencies which are required to protect the physical, chemical and bacteriological quality of public water and water courses, the Authority shall prohibit the discharge of sewage into the Town's sewerage system at unauthorized points or at rates of flow or at a level of quality specifically inadmissible under this contract.

4.2 Matter discharged into the Town's system shall consist only of sewage, shredded garbage and other wastes free from the prohibited constituents hereinafter provided and limited to BOD, suspended solids, dissolved sulfides and pH as hereinafter provided.

4.3 The Authority shall not discharge into the Town's system the following:

a. Storm water, surface water, ground water, roof runoff, subsurface drainage, uncontaminated cooling water or unpolluted industrial process water.

b. Gasoline, benzene, naphtha, fuel oil or other flammable or explosive liquid, solid or gas.

c. Wastes containing toxic or poisonous solids, liquids or gases in sufficient quantity, either singly or by interaction with wastes, to injure or interfere with any sewage treatment process, constituting a hazard to humans or animals, creating a public nuisance or creating any hazard

in the receiving waters or the sewage treatment plant.

d. Wastes having a pH higher than 9.5 or lower than 5.5, or having any other corrosive property capable of causing damage or hazard to structures, equipment or personnel of the sewerage system.

e. Wastes containing solid or viscous substances in quantities or sizes capable of causing obstruction to the flow in sewers or other interference with the proper operation of the sewerage system such as, but not limited to, ash, cinders, sand, mud, straw, shavings, metal, glass, rags, lint, feathers, tar, plastics, wood, unshredded garbage, whole blood, paunch manure, hair, fleshings, entrails, paper dishes, cups, milk containers, etc., either whole or ground by garbage grinders.

f. Wastes having temperatures in excess of 115^{o}F.

g. Wastes containing fat, wax, grease or oils, whether emulsified or not, in excess of one hundred (100) mg/l or containing substances which may solidify or become viscous at temperatures between 32^{o}F and 115^{o}F.

h. Wastes containing strong acids.

i. Wastes having a 5-day BOD in excess of 300 mg/l.

j. Wastes having a color in excess of 400 color units.

k. Wastes requiring more than 20 mg/l of chlorine, as measured by the orthotolidine method, to produce a

residual of 1.0 ppm after a contact period of 15 minutes.

l. Wastes containing unusual concentrations of 250 inert suspended solids (such as, but not limited to, Fullers earth, lime slurries and lime residues) or of dissolved solids (such as, but not limited to, sodium chloride and sodium sulfate).

m. Wastes containing substances which are not amenable to treatment or reduction by the sewage treatment processes employed by the Town or are amenable to treatment only to such degree that the sewage treatment plan effluent cannot meet the requirements of other governmental agencies having jurisdiction over discharge to the receiving waters.

n. Wastes containing more than 0.1 ppm unionized hydrogen sulfide.

4.4 In exercising its discretion as to the acceptability of wastes, the Town shall give consideration to all pertinent factors including, but not limited to, the following:

(a) Whether the waste is likely to harm either the sewage treatment process or equipment;

(b) Whether the waste is likely to have an adverse effect on the receiving waters;

(c) Whether the waste is likely to endanger human life, public property or constitute a nuisance;

(d) The quantity of the waste in relation to flows and velocities in the sewer.

4.5 The Town may elect to receive any of the wastes described in paragraph 4.3 upon special terms as to fees, charges and other matters, but the Town makes no commitment to accept such wastes under any terms. If any wastes set forth in paragraph 4.3 are discharged into the Town's system without prior approval, the Authority shall be subject to a surcharge or special assessment in such reasonable amount as the Town may establish which shall be collectable from the Authority and which may be added to the next monthly payment due from the Authority. Such surcharge or assessment shall be in addition to and not in place of all other rights and remedies of the Town at law or in equity, and whether or not imposed shall not be construed as a precedent for suffering any further discharge of like wastes without specific approval.

4.6 The Town reserves the right to prohibit other harmful discharges into its system upon determination that such other discharge or substance may materially reduce the useful life or operating efficiency of the system.

4.7 Any of the matters of discretion outlined in this Article to be exercised by the Town, may, by resolution, be delegated by the Town to its Manager.

ARTICLE V

METERING AND QUANTITY

5.1 Sewage from the Authority into the Town's sewerage system shall be measured by meters. The Authority

shall furnish, install, operate and maintain standard meters as part of the Authority's system. Such meters and related equipment shall remain the property of the Authority; however, the Town and the Authority shall have access to such meters and equipment at all times for inspection, examination and reading. Calibration and adjustment of the meters shall be accomplished by competent technicians upon request at reasonable intervals by the Town and at the expense of the Authority. All readings of meters shall be entered upon proper books of record in the Office of the Town. Upon written request the Authority shall have access to said records at reasonable intervals in the Office of Town during reasonable business hours.

5.2 Sewage meeting the requirements of Article IV is to be discharged by the Authority into Town's system, location limited to Manhole No.M-17 shown on Sheet12 of the plans by Shore Engineering Co., Inc., dated 8-73 . The initial quantity shall be twenty thousand (20,000) gallons per day.

5.3 The Town will increase the maximum quantity allowed the Authority upon the following provisions:

(a) The Authority shall request in writing the additional quantity of discharge.

(b) The Town shall poll all other contracting members of its system to ascertain whether they would request an increase and whether the

aggregate of all requested increases would require an increase in the total capacity of the Town's system.

(c) In the event the discharge of the Authority and any other contracting members requesting additional quantity can be increased without an increase beyond seventy-five percent (75%) of the total existing capacity of the Town's system, the Town will sell the Authority additional quantity for an amount which bears the same proportion to the local share of the funds necessary to construct the Town's present system as said increase in quantity for the Authority bears to the present volumetric capacity of the system as set out in paragraph 1.4 above.

(d) In the event the Authority requests additional discharge which would, together with the requests of other contracting members, increase the Town's total capacity beyond seventy-five percent (75%) of its existing capacity, the Town will sell the Authority additional quantity and increase the capacity of its system if the Authority pays the costs of such expansion in the proportion by which it shall receive the benefits of the increased capacity, but based on local share excluding Federal, State and County contributions.

5.4 The Authority shall not exceed its maximum agreed quantity of discharge without the consent of the Town, but if all user classes are using less than seventy-five percent (75%) of the existing capacity of the system and the Authority exceeds its maximum allowable quantity for five (5) or more days in any fourteen (14) day period, the Authority agrees to purchase additional capacity (in increments of ten thousand (10,000) gallons per day) on the terms described in 5.3(c) above within sixty (60) days from the 5th day capacity is exceeded in any 14-day period. The Town may curtail or suspend sewerage service to the Authority if such additional capacity is not purchased within such 60-day period, or the total capacity of the Town's system will be exceeded by the unauthorized discharge.

5.5 Should the sewage discharged by the Authority into the Town's system at any time not meet the requirements as to quality in Article IV above, the Town may at any time curtail or suspend service to the Authority to the extent necessary to require compliance with such Article.

5.6 The Town shall notify the Authority when all discharges from all sources reach seventy-five percent (75%) of the total capacity of the Town's sewerage system.

5.7 Should the Authority purchase or be required to purchase additional quantity of discharge sufficient to require that additional facilities be constructed on the

real estate hereinafter described owned by the Authority or Accomack County adjacent to the real estate on which the Town's present treatment plant is located, then to the extent that such real estate is utilized or occupied or allocated for sewerage system purposes, its then fair market value, provided that such fair market value shall not include any appreciation caused by any improvements made to said real estate after the date of this contract, shall be credited to the Authority's obligations to the Town toward capital contributions and costs of expansion. Fair market value shall be determined by agreement between the parties and failing agreement shall be determined by three (3) appraisers, one (1) appointed by each of the two (2) parties and a third (3rd) appointed by the two (2) so appointed. An appraisal agreed upon by any two (2) of said appraisers will be binding. Furthermore, under no circumstances shall the Authority be allotted less quantity or capacity of any improved sewerage facilities than their capital contribution by way of such real estate would entitle them to regardless of the requirements of other user classes.

5.8 Any requirements by Federal or State governments or their agencies for the increase of the total capacity of the present Town sewerage system beyond the quantities requested by the Authority or any change in type or extent of treatment shall be shared as to cost based on the percentage of use of the total capacity of the system during the year preceding such governmental requirements so that all user classes shall share the costs of such mandatory expansion proportionally.

ARTICLE VI

FISCAL PROVISIONS

6.1 It is acknowledged that gross revenues from its sewerage system will be the only resource of the Town for the payment of bonds, maintenance and operating expenses, and for establishing and maintaining reserve funds, and that such gross revenues will be derived in part by the Town under this contract.

6.2 The parties recognize the statutory and contractual duty of the Town to fix and from time to time revise (if and when necessary in accordance with the provisions of this contract relating to fixing of charges) the charges for services to be rendered and made available to the Authority so that revenues will at all times be sufficient to enable the Town to pay or provide for the payment of the cost of maintaining, repairing and operating the system, including reserves for such purposes and for replacement and depreciation.

6.3 The Town shall have the right to revise the payment schedule of the Authority after thirty (30) days written notice to the Authority. Such revision shall be for the sole purpose of allowing the Town to meet financial requirements for maintenance and operation of the system. This provision applies to all user classes of the system.

6.4 The Authority shall pay the Town eight percent (8%) of the local share of the funds necessary for the Town to construct the sewerage system at or before the time when the actual connection by the Authority to the system is made, said payment being in the amount of eighteen thousand dollars ($18,000.00).

6.5 The Authority agrees to make the payment in paragraph 6.4 in a lump sum.

6.6 In addition to such lump sum payment the Authority agrees to pay, as billed by the Town quarterly, an amount equal to that necessary to pay the Authority's metered volumetric portion based on the Town's total cost of operation and maintenance expenses and allocable to all user classes on a per one thousand (1,000) gallon unit basis. Such expenses will be reviewed periodically by the Town for accuracy. All billings pursuant to this Section shall be payable within thirty (30) days of the date of billing with a ten percent (10%) penalty for late payment.

6.7 The rates to be charged each user class for maintenance and operation expense shall be uniform.

6.8 The initial rates to be paid by the Authority to the Town computed on a calendar quarter basis shall be as follows:

0 gallons to 6,000 gallons - $2.14 per 1,000 gallons or part thereof

6,000 gallons to 15,000 gallons - $1.60 per 1,000 gallons or part thereof

15,000 gallons to 30,000 gallons - $1.44 per 1,000 gallons or part thereof

All over 30,000 gallons - $1.28 per 1,000 gallons or part thereof

The above rate structure shall be subject to a minimum charge of $250.00 per quarter.

11/7/89 - 1ST 5M GAL 3.36/M
BAL. (OVER 30M.) 3.00/M

ARTICLE VII

GENERAL PROVISIONS

7.1 Title to all sewage of the Authority shall remain in the Authority until it is received by the Town's system, whereupon title thereto and to all effluent therefrom shall pass to the Town. Any income to the Town derived therefrom shall be included in the gross revenues of the Town.

7.2 The effects of certain types of industrial waste upon sewers and sewage treatment processes are such as to require careful consideration of each industrial connection. This is a matter of concern both to the Town and to the

Authority. Accordingly, the Authority covenants that it will have in effect and will enforce a binding contractual provision regulating the discharge of industrial waste into its sewers subject to the general provision that no harm will result from such discharge and subject to the filing by applicant industry of a statement, a copy of which shall be forwarded to the Town, containing the following information: (a) Name and address of applicant; (b) Type of industry; (c) Estimated quantity of plant waste; (d) Typical analysis of the waste; (e) Type of pre-treatment proposed. To facilitate inspection and control of industrial waste, the Authority will, upon request by the Town, require industries to separate industrial waste from sanitary sewage until such industrial waste has passed through an inspection manhole which shall be located so as to be accessible at all times to inspectors of the Town and the Authority. If inspection indicates that damage might result from the discharge of such industrial waste, permission to make such discharge shall be revoked unless and until the industry promptly establishes acceptable remedial measures. The contracting member specifically agrees to prohibit discharge of waste containing more than 0.1 ppm un-ionized hydrogen sulfide to their sanitary sewage system.

7.3 At regular intervals the Town will make measurements, tests and analyses of the characteristics of waters and wastes discharged into its system, all of which shall be determined in accordance with the latest edition of "Standard Methods for the Examination of Water and Wastewater"

published by the American Public Health Association, and shall be determined at the point of discharge or at such other point as the Town may determine or upon suitable samples taken at said points of discharge. Sampling shall be carried out by customarily accepted methods to reflect the limits of concentration, etc., specified in Article IV and the effect of constituents upon the sewerage works and to determine the existence of hazards to life and property. (The particular analyses involved will determine whether a twenty-four (24) hour composite is appropriate or whether a grab sample or samples should be taken. Normally, but not always, BOD and suspended solids analyses shall be obtained from 24-hour composites of all outfalls whereas pH shall be determined from periodic grab samples). Should any such analysis disclose concentration higher than those permissible, the Town will at once inform the Authority of such violation. It shall be the obligation of the Authority, to the extent of its legal ability, to require the offending originator of said highly concentrated materials to undertake remedial pre-treatment of its wastes before discharge into the Authority's or Town's sewers. In some borderline cases of excessive strength of industrial waste, the originating industry and the Authority may be desirous, and the Town may be agreeable, to negotiating terms under which the Town will accept and treat the over-strength waste, but the Town makes no commitment to perform such service.

7.4 If, by any reason of Force Majeure, either party hereto shall be rendered unable wholly or in part to carry out its obligations under this agreement, then such party shall give notice and full particulars of such Force Majeure in writing to the other party within a reasonable time after occurrence of the event or cause relied on, and the obligation of the party receiving such notice, so far as it is affected by such Force Majeure, shall be suspended during the continuance of the inability then claimed, but for no longer period, and any such party shall endeavor to remove or overcome such inability with all reasonable dispatch. The term Force Majeure as employed herein shall mean acts of God, strikes, lockouts or other industrial disturbances, acts of public enemy, orders of any kind of the government of the United States or the State of Virginia or any civil or military authority, insurrections, fires, hurricanes, storms, floods, washouts, droughts, arrests, restraint of government and people, civil disturbances, explosions, breakage or accidents to machinery, pipelines or canals, partial or entire failure of water supply and inability on the part of any contracting member to provide water necessary for operation of its water and sewerage system hereunder, or of the Town to receive sewage on account of any other causes not reasonably within the control of the party claiming such inability. It is understood and agreed that the settlement of strikes and lockouts shall be entirely within the discretion of the party having the difficulty, and the above requirement that any Force Majeure shall be remedied with all reasonable

dispatch shall not require the settlement of strikes and lockouts by acceding to the demands of the opposing party or parties when such settlement is unfavorable to it in the judgment of the party having the difficulty. Force Majeure shall not relieve the Authority of its obligation to make payments to the Town as required under Article VI or its obligation with respect to quality of sewage as set forth in Article IV of this contract.

7.5 This contract shall be subject to all valid rules, regulations and laws applicable hereto passed or promulgated by the United States of America, the State of Virginia or any governmental body or agency having lawful jurisdiction or any authorized representative or agency of any of them.

ARTICLE VIII

TERM AND NOTICES

8.1 This contract shall continue in force and effect for forty (40) years from its effective date.

8.2 All notices or communications provided for herein shall be in writing and shall be delivered or mailed, and if mailed, shall be sent by certified or registered mail, postage prepaid, to the principal office of the party or its successor. The address of the Town shall be the Town's municipal office in Onancock, Virginia, and the address of the Authority shall be its offices in Parksley, Virginia, unless either is notified by the other in writing of a change of address.

ARTICLE IX

ADDITIONAL LAND FOR EXPANSION

9.1 The County of Accomack has purchased land, known as the Edwin Watts land, adjoining the land upon which the Town's present sewerage system is located, by deed recorded March 2, 1979, in Deed Book 407, Page 516, in the Accomack County Clerk's Office. Should said land be or become not available for the future expansion of such sewerage system in accordance with the terms of this contract, unless the Town agrees otherwise in its discretion, then the Town may terminate this contract after three (3) years written notice to the Authority.

IN WITNESS WHEREOF, the parties hereto acting under authority of their respective governing bodies have caused this contract to be executed in several counterparts, each of which shall constitute an original, all as of the day and year first written above.

TOWN OF ONANCOCK, VIRGINIA

By _____
Mayor

ATTEST:

_____
Clerk

INDUSTRIAL DEVELOPMENT AUTHORITY
OF THE COUNTY OF ACCOMACK

By _____
Chairman

ATTEST:

_____
Executive Director & Secretary

COMMONWEALTH of VIRGINIA

STATE WATER CONTROL BOARD

Richard N. Burton
Executive Director

P. O. Box 11143
Richmond, Virginia 23230-1143
(804) 527-5000
TDD (804) 527-4261

Tidewater Regional Office
287 Pembroke Office Park
Suite 310 Pembroke No. 2
Virginia Beach, Virginia 23462
(804) 552-1840
FAX (804) 552-1849

December 10, 1992

Mr. O. Lee Maddox, III, P.E.
9200 Arboretum Parkway
Suite 130
Richmond, Virginia 23236

RE: Central Accomack Sewer Study

Dear Mr. ~~Maddox~~ Lee:

I have reviewed the Draft Preliminary Engineering Proposal which was submitted to Mr. Robert Goode for the above-referenced project. Based on this initial review, the following comments are provided for your consideration:

1. In general, the Tidewater Regional Office concurs with the need to improve or maintain the environmental quality of the Eastern Shore. Along these lines, we support efforts to minimize impacts to the shallow aquifer and surface waters by the elimination of failing on site septic systems and the use of pit privys.

2. The Regional office also recognizes the negative impacts of periodic hydraulic overloads and bypasses of untreated sewage from Onancock's wastewater treatment facility and fully supports proposals to study and minimize infiltration/inflow to the Onancock collection system.

3. Regional or sanitation district concepts have been found to be efficient, cost effective professional organizations for the management and operation and maintenance of wastewater collection and treatment systems. Broad based user charge systems enhance self-sufficiency and equitably assess user charges.

4. The Eastern Shore Water Quality Management Plan identifies Onancock Creek as "water quality limited" with a wasteload allocation of 21 pounds for BOD and TSS. Concentrations in the existing Onancock permit allow for a discharge of up to 20.9 pounds of BOD and TSS, essentially the entire allocation. An increase in design flow to .5 MGD will reduce the existing 10/10 limits to 5/5 milligrams per liter (mg/l) for these parameters. Any change in the wasteload allocation would require amendment of the management plan. To initiate this amendment, the applicant would have to conduct stream modelling to demonstrate that water quality standards could be met with a loading greater than the current allocation. Amendments to the Management Plan must follow the Administrative Processes Act which includes public hearings and adoption by our Board.

5. The wasteload allocation may impact the alternatives analysis since more stringent limits will be required for a .5 MGD facility. The document indicates the VPDES permit "may" require nutrient monitoring. Initial calculations performed in accordance with the latest procedures indicate limits of 5/5 mg/l for BOD and TSS (to conform with the approved wasteload allocation), 0.9 mg/l for ammonia-N (but possibly somewhat higher in the winter if seasonal tiered limits are applied), 2.0 mg/l total phosphorus, monitoring for total nitrogen (TKN+NO2+NO3) and monitoring, with no specicic limits, for Water Quality Standards parameters. A copy of these Water Quality parameters and monitoring frequencies are attached for your review.

6. The Regional office recently received an application from the Town of Onancock for reissuance of the current VPDES permit. The design flow for the reissuance remains at .25 MGD. Without the increase in flow, the anticipated permit limits would be: 10/10 mg/l for BOD and TSS, ammonia-N .9 mg/l (but possibly somewhat higher in the winter if seasonal tiered limits are applied) and monitoring, with no specific limits, for Water Quality Standards parameters. The pH range of 6-9 SU and minimum effluent dissolved oxygen concentration of 6.5 would remain the same.

The Board's Construction Assistance Program encourages an application for funding of such a project. If selected, the proposal will require an Environmental Assessment (EA) and Preliminary Engineering report (PER) in accordance with the program's Procedural Guidelines. This draft report should provide a good foundation toward satisfacton of the PER requirements.

Technical inspections performed by TRO's staff indicate that maintenancce work is routinely performed on the existing Onancock facility, however, should Onancock decide to participate in the Regional proposal; unit processes should be furthur evaluated to ensure reliability. Any deficiencies or compatibility renovations could be corrected as part of the expansion of the existing facility.

Thank you for the opportunity to comment on the draft document. Should you have any questions or wish to discuss this matter, please contact me at (804) 552-1124.

Sincerely,

Bob Aaron

Robert C. Aaron
Regulatory Services

Enclosures

cc: OWRM/CAP - Walter Gills
VRA - Charles Massie
SDH/SERVO - Dan Horne

APPENDIX A Special Condition for Monitoring

The permittee shall monitor for the following chemicals according to the indicated sample type and frequency. The data shall be submitted as part of the application for reissuance or modification.

Chemical	analysis number	Detection level	sample type	frequency
Metals				
Arsenic		10.0	C	D
Barium		2.0	C	C
Cadmium		0.1	C	A
Chromium III			C	A
Chromium VI		10.0	G	A
Copper		1.0	C	A
Iron (soluable)			C	D
Lead		1.0	C	A
Manganese(soluable)			C	D
Mercury		0.2	C	A
Nickel		10.0	C	A
Selenium		2.0	C	A
Silver		0.2	C	A
Zinc		10.0	C	A
Pesticides/PCBs				
Aldrin	608	0.004	C	C
Chloropyrifos			C	C
Chlordane	608	0.014	C	C
DDT	608	0.012	C	C
Demeton			C	C
2,4-dichlorphenoxy acetic acid (2,4-D)			C	D
Dieldrin	608	0.002	C	C
Endosulfan I	608	0.014	C	C
Endosulfan II	608	0.004	C	C
Endosulfan sulfate	608	0.066	C	C
Endrin	608	0.006	C	C
Guthion			C	C
Heptachlor	608	0.003	C	C
Hexachlorocyclohexane (Lindane)	608	0.004	C	C
Malathion			C	C
Methoxychlor			C	C
Mirex			C	C
Parathion			C	C
PCB-1242	608	0.065	C	C
PCB-1254	608	---	C	C
PCB-1221	608	---	C	C
PCB-1232	608	---	C	C
PCB-1248	608	---	C	C
PCB-1260	608	---	C	C
PCB-1016	608	---	C	C

Chemical	analysis number	Detection level	sample type	frequency
[2-(2,4,5-Trichloro-phenoxy) propionic acid (Silvex)			C	C
Toxaphene	608	0.24	C	C
Base neutral				
Anthracene	625	1.9	C	C
Benzo(a)anthracene	610	0.013	C	C
Benzo(b)fluoranthene	610	0.018	C	C
Benzo(k)fluoranthene	610	0.017	C	C
Benzo(a)pyrene	610	0.023	C	C
Chrysene	610	0.15	C	C
Di-2-Ethylhexyl Phthalate	625	2.5	C	C
Dibenzo(a,h)anthracene	610	0.03	C	C
Indeno(1,2,3-cd)pyrene	610	0.043	C	C
1,2-Dichlorobenzene	625	1.9	G	C
1,3-Dichlorobenzene	625	1.9	G	C
Fluoranthene	625	2.2	C	C
Fluorene	625	1.9	C	C
Pyrene	625	1.9	C	C
Isophorone	625	2.2	C	C
Volatiles				
Benzene	624	4.4	G	C
Bromoform	624	4.7	G	C
Carbon Tetrachloride	601	0.12	G	C
Chlorodibromomethane	624	3.1	G	C
Chloroform	624	1.6	G	C
Chloromethane	624	---	G	C
Dichloromethane	624	2.8	G	C
Dichlorobromomethane	624	2.2	G	C
1,2-Dichloroethane	624	2.8	G	C
Ethylbenzene	624	7.2	G	C
Monochlorobenzene	624	6.0	G	C
Tetrachloroethylene	624	4.16	G	C
Toluene	624	6.0	G	C
Trichloroethylene	624	1.9	G	C
Vinyl Chloride	624	---	G	C
Acids				
Pentachlorophenol	604	0.59	C	C
Phenol	625	1.5	C	C
2,4,6-Trichlorophenol	625	2.7	C	C

Chemical	analysis number	Detection level	sample type	frequency
Miscellaneous				
Ammonia		0.1 mg/l	C	A
Chloride			C	C
Cyanide		5.0	G	B
2,4-Dinitrotoluene	609	0.02	C	C
Dioxin			C	C
Foaming agents (MBAS)			C	D
Hardness			C	A
Hydrogen Sulfide			G	C
Kepone			C	C
Nitrate			C	D
Phosphorus(elemental)			C	F
Radioactivity			C	C
Sulfate			C	D
Tributyltin			C	E

Units for the detection level are micrograms/liter unless otherwise specified

Frequency:
- A = once per six months
- B = once per year
- C = once per 5 years
- D = once per 5 years - applicable only for discharges to public water supplies
- E = once per year - applicable only for permittees handling antifouling paints or other materials containing this chemical.
- F = once per 5 years - applicable only for discharges to salt water.
- X = no monitoring required by this permit

Sample Type:
- C = 24 hour composite unless otherwise specified
- G = Grab

Metals shall be reported as Total Recoverable except Chromium VI which is reported as dissolved.

This permit may be modified or alternatively revoked and reissued to incorporate limits for any of the above chemicals.

NOTE: The monitoring frequency should be permit specific.

COMMONWEALTH of VIRGINIA

EASTERN SHORE HEALTH DISTRICT

ACCOMACK COUNTY
P.O. BOX 177
ACCOMAC, VIRGINIA 23301
PHONE 804-787-2245

NORTHAMPTON COUNTY
P.O. BOX 248
NASSAWADOX, VIRGINIA 23413
PHONE 804-442-6228

November 20, 1992

G. Christian Guvernator IV, P.E.
Dewberry & Davis
9200 Arboretum Parkway
Suite 130
Richmond, VA 23236

Through: N. Pierce Eichelberger, Environmental Health Manager

Re: Information Request
Central Accomack Sewer Study

Dear Mr. Guvernator:

In response to your letter of November 17, 1992, I will attempt to describe the condition of and the repair rates of sewage diposal systems in the Towns of Accomac, Onley, and Melfa. I will also attempt to foresee benefits to be derived from a central sewer service and envision impacts of "no action" over the next 40 years.

The "Town of Accomac" is a relatively old town by Eastern Shore Standards. The people who settled there were generally able to afford state of the art facilities. As time passed, Accomac grew, as did the houses. The lots the houses are on, of course, did not change. The result of this is that many older homes are situated on small lots by today's standards. The sewage systems on these small lots are going to fail. To date, the rate of failure approaches three per year. The problem arises in that areas of repair have been compromised by building additions, well locations, and existing soils being damaged where failures occur.

The major benefit to be gained from a central sewage system would be to relieve the limitations of the small lots in the business and residental districts of the town. For example, a restaurant operation has been sought by many parties for years, only to be denied based on a lack of sufficient disposal area.

Accomac has the potential to grow since there is ample well-drained soil on the outskirts of town. However, since the town has no public water supply, all drinking water would be produced on site. This fact forces larger lots to afford adequate separation between drinking water wells and sewage disposal systems.

The towns of Melfa and Onley have all the problems that Accomac does with the additional facts that the soils are more poorly drained and growth potential is less due to the scarcity of acceptable soils. These two towns have a correspondingly greater rate of failure due to the poorer soils conditions.

Central sewage in these towns will solve existing health problems and prevent potential health problems as related to sewage disposal and its effect on domestic drinking water supplies and the general environment.

The impact of "no action" on these three towns in the next 40 years will effectively curtail growth and invite health risks as yet not identified.

I hope this information has been of some help.

Sincerely,

Arthur C. Miles
Environmental Health Supervisor

NPE/ACM/cgb
dew

COMMONWEALTH of VIRGINIA

ROBERT B. STROUBE, M.D., M.P.H.
STATE HEALTH COMMISSIONER

Department of Health
P. O. BOX 2448
RICHMOND, VA 23218

RECEIVED
DEC 2 1992
DEWBERRY & DAVIS

November 30, 1992

Mr. G. Christian Guvernator IV, P.E.
Dewberry & Davis
9200 Arboretum Parkway, Suite 130
Richmond, Virginia 23236

Dear Mr. Guvernator:

This is in response to your letter of November 16, 1992. As you are aware, Onancock Creek has a sewage treatment facility of 0.25 MGD that serves the town of Onancock. The steady state point source discharge model indicates that the effects of a discharge of that size at a fecal coliform MPN of 400 reach a fecal coliform MPN of <3 well upstream of the present closure line (see attached map). The extent of the effects of a 0.6 MGD discharge at 400 MPN is also well upstream of the closure. If the permit for the maximum MPN for the larger discharge were written for 200 MPN, the effects would drop back approximately to that for the 0.25 MGD plant. At this time other causes have necessitated the closure of Onancock Creek some distance downstream of the predicted effects of the treatment plant. However, if bacteriological water quality in Onancock Creek should improve, the distance the closure line could be moved upstream would be limited by the presence and effects of the point source discharge.

On five occasions between 1985 and 1992, the entire Onancock Creek down to the Chesapeake Bay has been closed for a period of two to four weeks on an emergency basis due to bypassing of treatment caused by hydraulic overload from heavy rains. During the emergency closures the Division must carry out additional sampling to determine when the effects of the untreated sewage have dissipated. The Division believes that less shellfish ground would be in jeopardy of closure if this plant were upgraded such that bypassing due to heavy rainfall were eliminated.

Pungoteague Creek has one small treatment facility (0.009 MGD) serving South Accomack Elementary School. It discharges less than once per month from a 10-day holding pond to a ditch leading to Warehouse Prong. There are no other point source discharges or onsite deficiencies (malfunctioning septic tanks/drainfields or

overflowing privies) remaining from the 1987 shoreline sanitary survey. There is the theoretical possibility that all of Pungoteague Creek could be reclassified as approved for the direct marketing of shellfish with the exception of Warehouse Prong.

The upper portion of Folly Creek, on the seaside, is closed due to unsatisfactory fecal coliform levels apparently caused by nonpoint runoff from agricultural fields and from the town of Accomac. There are no known point sources of pollution so there is the possibility that the creek may be reopened. You should also be aware that there was a great public outcry when Folly Creek was first closed in 1991. Therefore, I expect that there would be a great deal of opposition to a sewage discharge on Folly Creek.

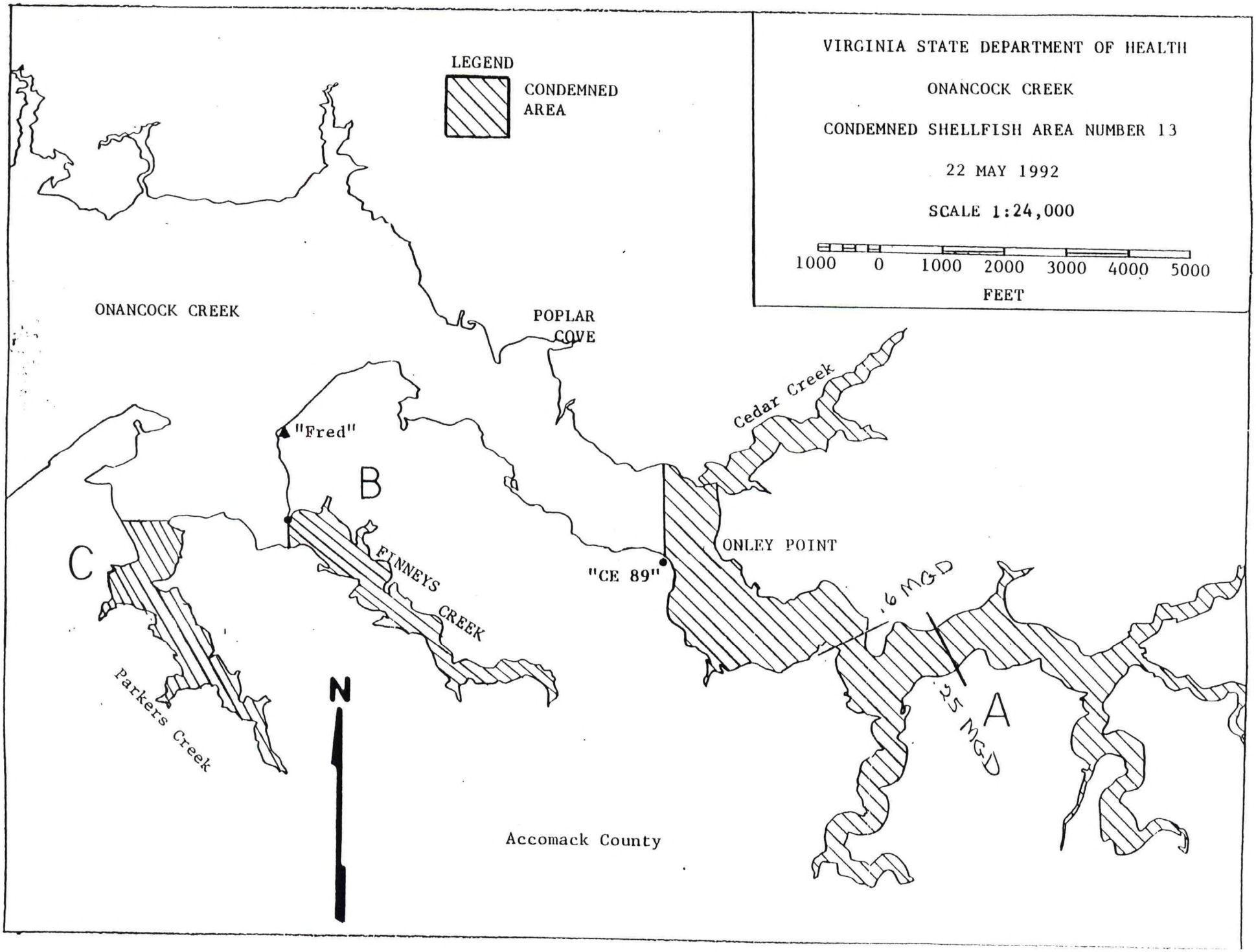
Please do not hesitate to contact me if I may provide additional information.

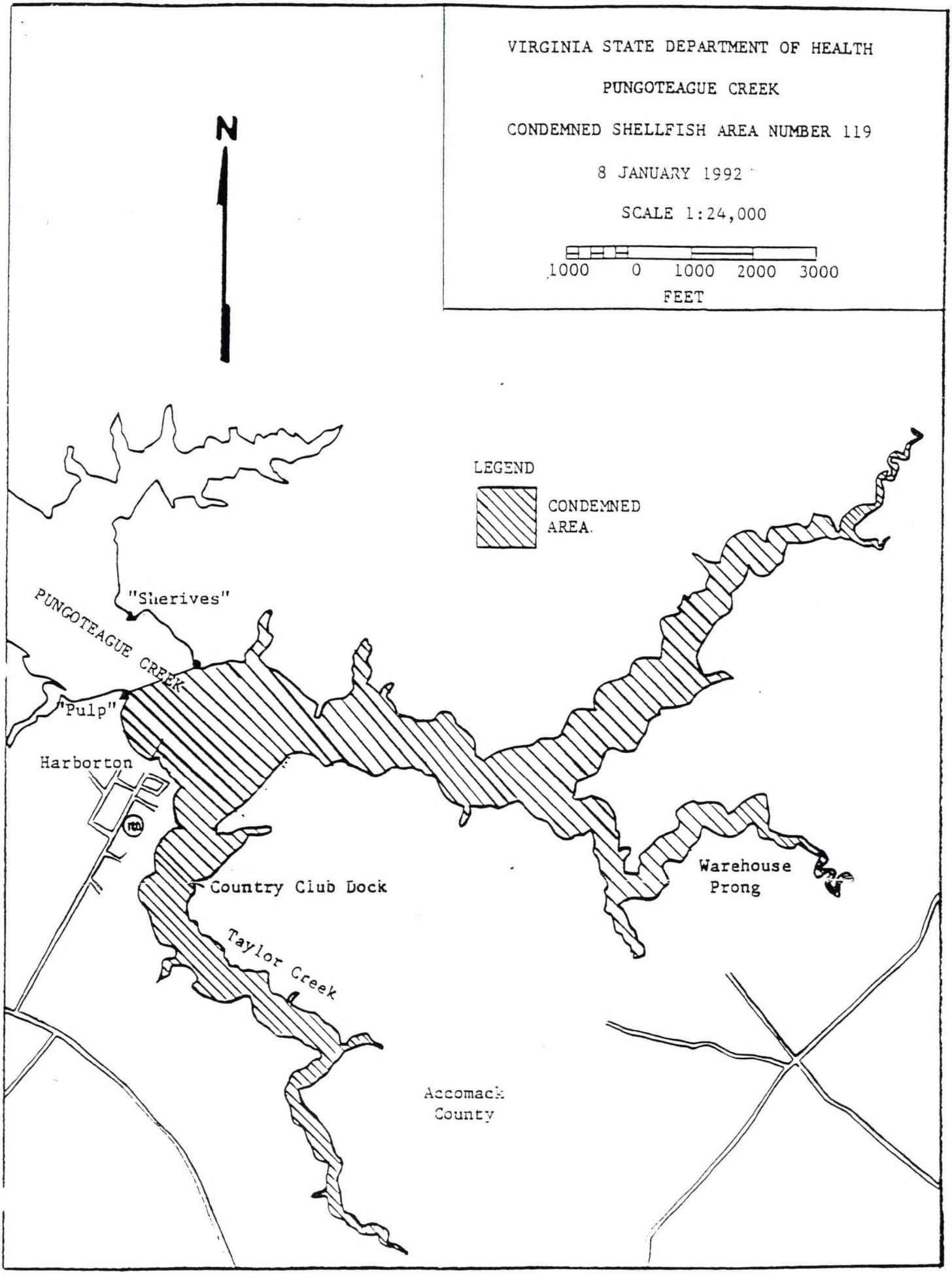
Sincerely,

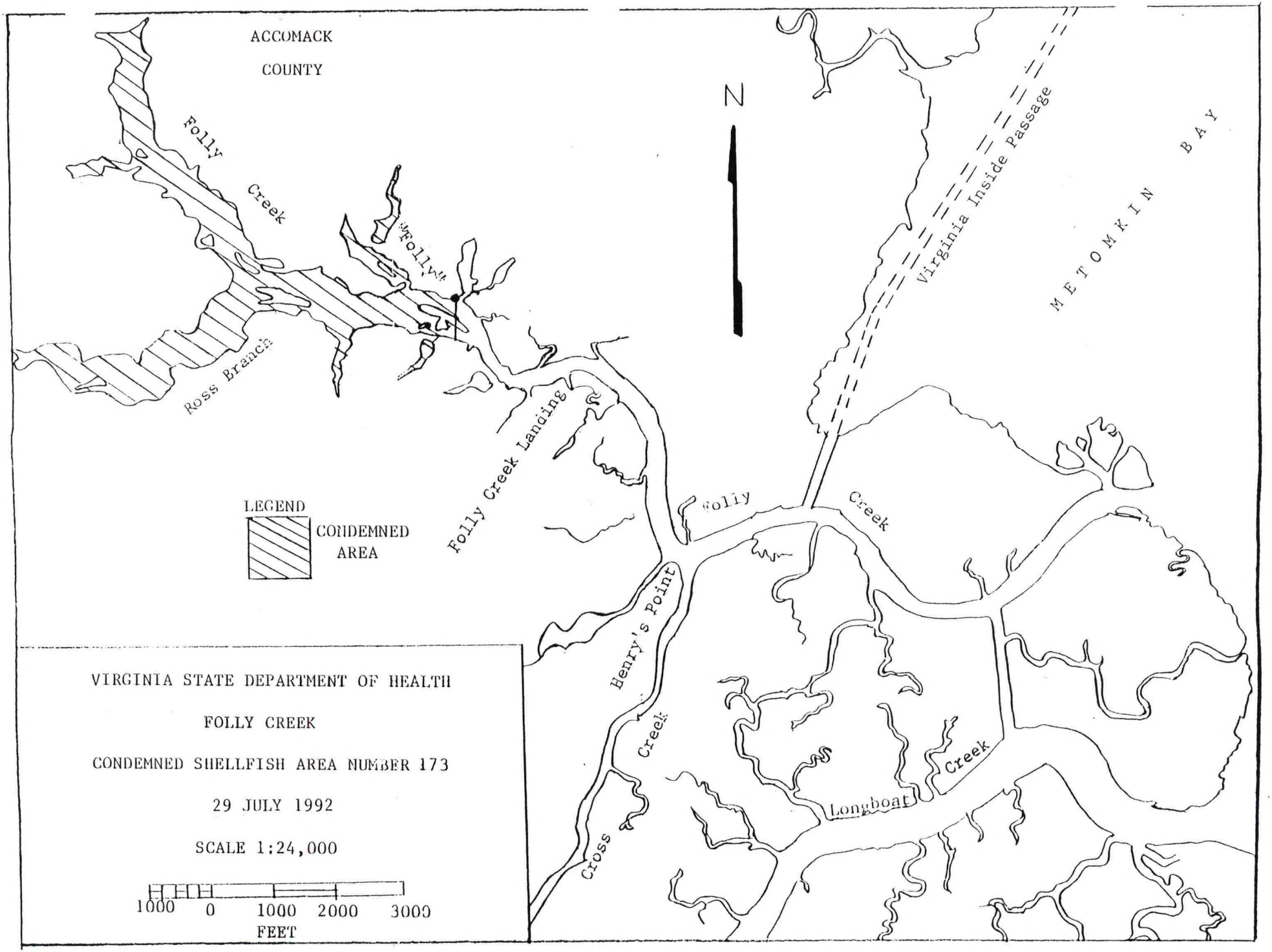
Mary P. Wright, Classification Chief
Division of Shellfish Sanitation

Attachment

MPW/scs


VIRGINIA STATE DEPARTMENT OF HEALTH
ONANCOCK CREEK
CONDEMNED SHELLFISH AREA NUMBER 13
22 MAY 1992
SCALE 1:24,000
1000 0 1000 2000 3000 4000 5000
FEET
LEGEND
CONDEMNED AREA
ONANCOCK CREEK
POPLAR COVE
Cedar Creek
"Fred"
B
C
FINNEYS CREEK
ONLEY POINT
"CE 89"
.6 MGD
.25 MGD
A
Parkers Creek
N
Accomack County


VIRGINIA STATE DEPARTMENT OF HEALTH
PUNGOTEAGUE CREEK
CONDEMNED SHELLFISH AREA NUMBER 119
8 JANUARY 1992
SCALE 1:24,000
1000 0 1000 2000 3000
FEET
N
LEGEND
CONDEMNED AREA.
"Sherives"
PUNGOTEAGUE CREEK
"Pulp"
Harborton
Country Club Dock
Taylor Creek
Warehouse Prong
Accomack County


ACCOMACK
COUNTY
N
Folly
Creek
Folly
Creek
Ross Branch
Folly Creek Landing
Virginia Inside Passage
METOMKIN
BAY
LEGEND
CONDEMNED
AREA
Folly
Creek
Henry's Point
Creek
Cross
Creek
Longboat
Creek
VIRGINIA STATE DEPARTMENT OF HEALTH
FOLLY CREEK
CONDEMNED SHELLFISH AREA NUMBER 173
29 JULY 1992
SCALE 1:24,000
1000 0 1000 2000 3000
FEET

MEMORANDUM

TO: Paul Berge and Jim McGowan
Members of Sewer Study Committee

FROM: O. Lee Maddox, III, P.E.

DATE: January 8, 1993

RE: Central Accomack Sewer Project

As requested after the December 17, 1992 Committee meeting, representatives of Dewberry & Davis met with the Hampton Roads Sanitation District (HRSD) to discuss their possible interest in expanding their service area to include portions of the Eastern Shore. This memorandum will serve as the minutes of this meeting.

The meeting was held on January 5, 1993 in the HRSD Office with the following persons in attendance:

James Borberg, General Manager HRSD
Donnie Wheeler, Director of Water Quality HRSD
David Waltrip, Director of Treatment HRSD
Ed Romm, Director of Engineering HRSD
Glenn Rehberger, CH2M Hill, Consultant to HRSD
Charles Maddox, G.W. Clifford & Associates
Lawrence Phipps, Dewberry & Davis
Lee Maddox, Dewberry & Davis

After a brief and general introduction of HRSD by Mr. Borberg and his Staff, Lawrence Phipps and Lee Maddox discussed the Central Accomack Sewer project including project service area, design criteria, and proposed funding package. Charles Maddox of Clifford & Associates, then discussed the Exmore project. Following an interactive discussion of both projects the following conclusions were reached:

1. HRSD is very open and flexible and would consider expanding their service area to include the Eastern Shore if formally invited by the local governing bodies. Typically, HRSD only builds, operates and maintains the main interceptors and treatment facilities with the county and towns responsible for the collector systems. HRSD is however flexible in that they would consider being responsible for the collector systems. It was stated that it is their policy that they do not purchase existing facilities.

2. HRSD feels that the most economically feasible alternative for construction of the project(s) would be for the local jurisdictions to do this because of their grant and loan eligibility. HRSD could not construct the project(s) as economically because they are not "grant eligible". Also, HRSD indicated that an Eastern Shore service area would have a separate rate structure from the remaining service area.

3. If part of the District, HRSD would initially and for several years serve the Eastern Shore by establishing a "circuit riding" team to operate and maintain the multiple facilities with most or all of the laboratory and testing functions occurring in one central location. This could result in some cost savings in operation and maintenance for the system.

In conclusion it appears that HRSD offers no benefit for capitalization (construction) of the project(s), however, some cost savings could be realized in operation and maintenance costs if several facilities were operated by HRSD through combining resources.

It is our recommendation that the most feasible approach to move the project forward is through the local jurisdictions. It is critical that the Committee and Local Governing Bodies move the project forward for funding. The eve of the next funding cycle is upon us with Community Development Block Grant Applications due in early March, followed by the Virginia Revolving Loan Fund in May.

We stand ready to assist you to move the project to the next step and look forward to meeting with you again.

cc: Mr. Jim Borberg, HRSD
Mr. Larry McBride, SWCB
Mr. Charles Maddox, Clifford & Associates

hrsdmtg.mmo

Commonwealth of Virginia

HAMPTON ROADS SANITATION DISTRICT

JAMES R. BORBERG, P.E.
GENERAL MANAGER

KEITH W. BENSON, P.E.
DIR. OF INTERCEPTOR SYSTEMS

S. CRAIG FENTON, CPA
DIR. OF FINANCE AND ADMINISTRATION

EDWARD D. ROMM, P.E.
DIR. OF ENGINEERING

G. DAVID WALTRIP, P.E.
DIR. OF TREATMENT

DONNIE R. WHEELER
DIR. OF WATER QUALITY

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DEWEY E. WORNOM, P.E.

LOUISE G. WALDEN

January 12, 1993

Mr. Paul F. Berge
Executive Director
Accomack-Northampton
Planning Dist. Comm.
P. O. Box 417
Accomack, Virginia 23301

Dear Paul:

I received a copy of the minutes of our December 17, 1992 meeting as written by Lee Maddox. There are a couple of points that I think need clarification so that we don't have a misunderstanding.

In Lee's paragraph #1, it is correct that we do not purchase existing facilities, but the reason is that the existing users would have to pay for the system again. Our only revenue is from the rate payers, and if we have to recapture the cost of purchasing a system, this must be included in the rates. We believe that it is far cheaper for the rate payer to transfer the facilities to us at no cost because their rates would then be lower.

In his paragraph #2, we intended to say that we believe that the most economical approach is for the local jurisdictions to obtain the low cost grants and loans but that HRSD could construct the facilities. They would eventually belong to HRSD, but perhaps initially they would have to belong to the local jurisdictions because of loan or grant conditions. Again, we could be flexible on this to work out whichever way would be feasible. Because of all the unknowns, we believe that the Eastern Shore might have a different rate structure from the District; however, grants and low cost loans might reduce the cost so that the standard District rate might apply. Again, we would be flexible on the rate structure

such that as nearly as possible, rate payers would pay the cost of service.

I believe that HRSD could offer the Eastern Shore many benefits. Construction, maintenance, and operation of sophisticated wastewater treatment plants is not a simple task. Most towns and counties rely on the Virginia Department of Transportation to build their roads, and since wastewater treatment is far more complex than building roads, I believe it makes good sense to transfer this task to a knowledgeable organization that can provide economical service.

Very truly yours,

James R. Borberg
General Manager

JRB/ssc
CC: O. Lee Maddox, III
Charles E. Maddox, Jr.
Larry S. McBride