



Queen Anne's County Health Department
State of Maryland

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ENVIRONMENTAL HEALTH SERVICES

7/8/11

Mr. J. Michael Warring PE, Chairman
Queen Anne's Co. Public Works Advisory Board
P.O. Box 31
Queenstown, MD 21658

Re: (S.K.I.) Southern Kent Island Sewage Concerns

Mr. Warring,

After attending the 6/1/11 Public Works Advisory Board Meeting the following comments are offered for your consideration:

1. It was evident to me there are members of the Board you chair that understand the scientific facts of the issues regarding the S.K.I. sewage disposal problems. There are others who question the scientific facts and even the testimony of those recognized as experts.
2. I base my final decisions upon the best known scientific facts available to me as "Approving Authority" for on-site waste disposal in Queen Anne's County. The Judicial system has upheld my decisions based upon scientific facts. Those facts have not changed no matter what developers, individual lot owners or individual citizens choose to understand.
3. The following facts continue to exist:
 - (a) Seasonal high water tables causing severe limitations to on-site waste disposal systems.
 - (b) Small lot sizes and small lot areas to accommodate on-site waste disposal systems.
 - (c) Slowly permeable soil conditions which limit the ability of the sewage wastes to percolate through the upper soil strata.
 - (d) Poor surface drainage.
 - (e) Failing septic systems needing a permanent solution to the property's wastewater disposal needs as on-site remedies require continual penetration of the State's Groundwater with sewage wastes. Less and less available lot area for even these types of system repairs.
 - (f) The impractical solution of "holding Tanks" because of homeowner pumping costs and enforcement problems. In addition, the sewage still has to be trucked at great energy and money costs to the K.N.S.G. sewage treatment plant versus being transported by a sewer main.



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4. When our office overturned previously approved percolation tests the Administrative Judicial System upheld our decisions based upon testimony regarding failing septic systems. The Maryland Department of Environment provided technical and legal support of the denied septic system permit applications. It is to be noted, if there were no septic system failure problems then many of the existing vacant lots would be able to obtain a permit to build.

5. One of your Board members suggested each home could have their own "little sewage treatment plant" in lieu of one well run County Operated Sewage Treatment Plant. These "little package treatment plants" historically were produced by manufacturers at the requests of developers and builders. The developers were seeking some method to overcome the denial of building permits because of unsuitable lot and soil conditions for on-site waste disposal. Some states allow these technologies to treat and surface discharge the treated sewage wastes. My professional opinion is that it is unsound thinking to conclude that ultimately 1500+ individual homes each having their own little sewage treatment plant would operate correctly as a permanent wastewater disposal solution versus one main sewer collection pipe transporting the sewage wastes to a properly run E.N.R. Sewage Treatment Plant. In addition, 500,000 gallons of the County owned Plant (K.N.S.G.) is dedicated to the S.K.I. sewage disposal problem. The E.P.A. concludes that individual homeowner managed treatment plants across the nation are a failure because of lack of maintenance and lack of enforcement capabilities to assure their proper operation. The majority of these small treatment plants at best provide partial secondary treatment and not tertiary treatment to remove all the pathogenic organisms. Also, if these individual treatment units were a permanent wastewater disposal option, then it would be plausible the vacant lot owners could utilize the same technology to exercise their right to build.

6. Comments made at the 6/1/11 meeting suggested that "mound systems" were the solution to the septic system failure problem. Mound systems are a disposal technique that is site specific. They are not a "cure all" for all lot soil and site conditions; otherwise many of the vacant lots would be using this technology. When our office evaluates a vacant lot of record for on-site waste disposal and an existing home's septic system repair or replacement options, mound system potential is taken into consideration as an option.

Vacant lots have failed mound tests because of slowly permeable soils within the first 2 feet from ground surface. Infiltration rates ranged from 1/8 inch in 600 minutes to 1/4 in 800 minutes. Conventional mounds for subdivision of ground require infiltration rates no slower than 1 inch in 60 minutes. Alternative mounds for lots of record require infiltration rates no slower than 1 inch in 120 minutes. Innovative mounds for existing septic system repair require infiltration rates no slower than 1 inch in 240 minutes. All mounds require a seasonal high water table no closer than 2 feet from ground surface.

Soil conditions on Southern Kent Island in the first 2 feet from ground surface are clay, clay loams, silts, silt loams and sandy clay loams with poor soil structure. These soils normally will not pass mound tests. Even if soils could be found to pass infiltration tests, most lots have insufficient lot area and lot configuration to accommodate a mound system.

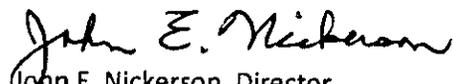
What our office has approved are elevated low pressure dosed sand lined trenches directly penetrating the groundwater into the water bearing sand strata. These trenches are elevated in an attempt to overcome high water tables. They help shed surface water, but typically adversely impact surrounding land by diverting rainwater to lower areas. Lay people and homeowners sometimes think these systems are "mound systems".

7. A regular septic system discharges approximately 60 mg/liter of nitrogen. A Best Available Technology ("BAT") septic system discharges approximately 20-30 mg/liter of nitrogen. The County owned KSNG enhanced nutrient reduction sewage treatment plant discharges approximately 2.5-3.0 mg/liter of nitrogen. Connecting septic systems to public sewer is an EPA and State of Maryland priority to help reduce nutrient pollution to the Chesapeake Bay and its Tributaries.
8. The State of Maryland's Revolving Loan fund and Grant finding should be sought to help defray the costs of the public sewer. Because of the public health concern the project should qualify for eligibility requirements even though it currently is not a priority funding area.
9. The County listed these failing septic system areas in their Master Water and Sewer Plan for over 30 years. The 1990 Master Water and Sewer Plan indicated the Kent Island Estate-Romancoke on the Bay area would be served with public sewer starting construction in Fy 1994. (Table 3-8 enclosed) The local Department of Health has been placed in the awkward position of responding to septic system repairs and failures, attempting to keep sewage wastes from ponding directly on the ground surface or running into drainage areas, while believing the County would follow their own Master Water and Sewer Plan and provide public sewer as a permanent solution.

In conclusion, it is my professional opinion public sewer is the proper permanent solution to the S.K.I. sewage disposal issues. The County already has a well run E.N.R. Sewage Treatment Plant with 500,000 Gallons of its capacity dedicated for this purpose.

If I can be of further service please call me at 410-758-2281.

Sincerely,


John E. Nickerson, Director
Environmental Health Services

CC: The Honorable Queen Anne's County Commissioners
Mr. Gregg Todd, County Administrator, Queen Anne's County
Mr. Todd Mohn, Director Queen Anne's County Dept. of Public Works
Mr. Alan Quimby, Chief Sanitary District Engineer, Queen Anne's County
Dr. Robert Summers, Secretary Maryland Dept. of Environment
Dr. Chinnadurai Devadason, Health Officer, Queen Anne's County

TABLE 3-8

QUEEN ANNE'S COUNTY
IMMEDIATE, 5- AND 10-YEAR PRIORITIES FOR
SEWERAGE DEVELOPMENT

Fiscal Year and Project Number	County Priority	Coordinate Location	Description	Total \$ (x 1000)	COSTS			PROJECT SCHEDULE			
					PL 600 Eligibility	Other Federal	Local	Preliminary Plans	Financial Plans	Start Construction	Complete Construction
1990-01	1	425N 997E	Cloverfields	7,605				FY 1990	FY 1992	FY 1993	FY 1995
1990-02	2	413N 987E	Bay City	6,072				FY 1991	FY 1993	FY 1994	FY 1996
1992-01	3	Plant 397N 982E Overall 396W 975E	Southern Kent Island	6,621 7,661				FY 1992	FY 1993	FY 1994	FY 1998
1998-01	4	405M 1005E	Dominion Marling Farms	6,070				FY1998	FY 2000	FY 2000	FY 2002