



ENVIRONMENTAL HEALTH SERVICES
QUEEN ANNE'S COUNTY
HEALTH DEPARTMENT

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TO: Mr. D. Steven Walls, Director of Public Works

FROM: John Nickerson, Director of Environmental Health

DATE: December 17, 1998

RE: Southern Kent Island Environmental Health Department Issues

The following information and comments are offered regarding certain public health concerns which you may wish to incorporate or reference in your executive summary to the County Commissioners.

General Comments:

1. As "Approving Authority" for individual on-site waste disposal systems and water supplies for Queen Anne's County the "older small lot subdivisions" on Kent Island represent the greatest challenge for our office in assuring adequacy of water and sewer. In most instances lot size constraints represent the most significant limiting factor to continue providing adequate on-site waste disposal. Repairing, replacing or adding on to existing septic systems becomes increasingly difficult and more expensive. Homeowners are limited as to expanding their living space or allowing accessory uses such as swimming pools or garages when these proposals adversely affect their sewage system replacement areas. Our office has not formally tracked building and use permit denials or alterations. My staff indicates the majority of these denials or changes to the original requests occur via phone or via office visits prior to actual building permit applications. Public sewer to the "older small lot subdivisions would be of intrinsic benefit to property owners as it would allow them to maximize their uses according to zoning restraints.

2. Kent Island Estates-Romance on the Bay continue to "stand out" as the designated number one priority area for public sewer from an Environmental Health viewpoint. If one were to review and consider all areas of Queen Anne's County currently served by septic systems this area has the greatest priority for the following reasons:
 - a. Small lot sizes
 - b. Number of existing houses clustered on a limited acreage
 - c. A seasonal high water table (Feb-April) which causes the septic system discharges not to be properly attenuated before entering the State's groundwater. This condition constitutes a septic system failure by traditional public health definition. A homeowner's definition of failure would be when wastewater backs up in the house

plumbing or significantly overflows on the ground surface.

3. The 1989 Health Department Study currently in Queen Anne's County Master Water and Sewer Plan was conducted by E. Wayne Asplen, Regional Consultant for the Maryland Department of Environment and myself. It must be emphasized that this study assigned higher risk weight to sewage directly penetrating groundwater and that the uncorrectable failures relates to failures because of groundwater penetration. This study does not correlate to the failure that homeowner's recognize which is sewage backing up in their plumbing or overflowing on the ground.
4. There are over 750 homes in Kent Island Estates-Romancoke on the Bay. Seasonal high water tables observed in piezometers and auger holes indicate at least 80% of these houses discharge septic wastes directly to the groundwater during the wet season (March, April). All the well casings for these homes go through the shallow groundwater where sewage wastes discharge in order to reach the Aquia Aquifer which is a "confined aquifer" utilized for their water source. There is no known bacterial contamination or nitrate-nitrogen contamination of the Aquia Aquifer at this location. However, there is a risk associated with this existing situation. Pitted or cracked well casings or inadequate grouting around the casings is a risk factor which could cause contamination to the drinking water. The health risks because of the density of housing and the direct penetration of the groundwater with sewage wastes is significantly higher than areas of the County where there is less density and no direct penetration of the groundwater with sewage wastes.
5. Documented health disease outbreaks because of sewage wastes occurs most often when people drink water contaminated with sewage. (See attached plumbing history, septic systems handbook, and wastewater and health literature) There are risks with sewage discharging on top of the ground if children, animals, or adults physically come in contact with the wastes. Health journals indicate flies, cock roaches and other pests may cause indirect contamination of food sources. There have been several outbreaks of disease associated with shellfish (oysters, clams) contaminated from sewage wastes running off into shellfish growing areas.
Again, Kent Island Estates-Romancoke on the Bay rate the first priority for public sewer in Queen Anne's County because of the potential for a water related sickness caused directly or indirectly by sewage contamination. Health officials have particular concerns about what they refer to as infective doses or concentrations. The high density of homes in this area causes a greater concentration of sewage wastes in the shallow groundwater.
6. There have been two physical surveys of Kent Island Estates-Romancoke on the Bay to document sewage wastes ponding in the grass or running into nearby ditches. (See attached 1990 and 1995 surveys and discussion in letter of 5-25-90 to J.L. Hearn and letter of 4-29-97 to Steve Walls.) Conducting any further studies of this type for this area, I believe, would serve no particular value as there appears to be no significant difference in the pattern of "homeowner type failures." Weather conditions, change of ownership, changes in wastewater volume, and an average of approximately (7) seven repairs of septic systems per year in this area provide a continual change year to year. My staff has

not formally tracked complaints, but are of the opinion there is no significant noticeable increase in the level of complaint activity from Kent Island Estates-Romancoke on the Bay. They estimate an average of 10-12 citizen complaints per year from this area regarding septic system failures. This represents the highest number of complaints when compared to any other area (subdivision) in the County.

7. As you are aware, Planning and Zoning have segmented Southern Kent Island into four (4) segments (A,B,C,D) for purposes of evaluating certain scenarios if public sewer served these segments. It is obvious by their map where the greatest density of small lots clustered together occurs. Subdivisions such as Sunny Isle of Kent, Chesapeake Estates, Kentmorr and Kent Point are similar in lot sizes as Kent Island Estates-Romancoke on the Bay. As a generalized statement these subdivisions have comparable Environmental Health concerns as Kent Island Estates and Romancoke on the Bay. The per cent of homes with their sewage wastes directly penetrating groundwater during the wet season is approximately 75 per cent and a physical sanitary survey would probably show similar "homeowner failure per cent rates. The difference is in the number of lots, the number of existing homes, and citizens being affected.

8. Public water would not be required by our Environmental Health office should any or all of these areas be served with public sewer. However, public water is considered as a better method of providing water rather than each lot having its own well. In addition, there will occur demand for a significant number of new wells to serve vacant lots which would become buildable with public sewer. This increased usage may cause the potential for increased salt-water intrusion into the Aquia Aquifer along the western edge of Kent Island. Our office would strongly recommend that if public water were provided that all existing wells be required to be abandoned and sealed. Existing wells left in Cloverfields and Bay City have become an enforcement "nightmare" to determine if they are routinely in use. Wells not routinely used pose the specific hazard of the homeowner not recognizing any changes in the water such as "dirty water" from an eroded casing. This in turn causes unnecessary risks for contamination of the Aquia Aquifer.

Summary Comments:

1. The critical question becomes when should public sewer be provided for these "older small lot subdivisions," in particular Kent Island Estates-Romancoke on the Bay. If one considers a septic system failure as one with direct groundwater penetration then the answer is immediately. As a practical matter the homeowner definition of failure should be weighed more heavily, because ultimately the people within the communities must acknowledge and recognize they have a significant problem that public sewer would rectify. In addition, I am of the opinion that most vacant lot owners would vote for public sewer immediately. The cost to each homeowner for public sewer will become the overriding decision factor.

2. There are other County Commissioner concerns besides the health Department issues, such as vacant lot build out overcrowding schools, increased road traffic, private versus public roads, stormwater management, solid wastes increase, and last but not least, debt load.
3. Our office will continue to strive to serve the citizens with on-site repairs. I do not believe "pump and haul" methods are practical because of excessive costs.
4. Currently, I am reviewing (as time permits), each record of the older subdivisions on Southern Kent Island that our office has on file. I am compiling a list of the dates of septic system installations, the type of system installed, and the corresponding Lot, Block, Section Number. This information will prove useful for tracking new type of installations such as low pressure dosing, sewage effluent pumped systems, sand lined trenches, septic tank replacements. In addition, I am tracking some seasonal water table readings from utilizing the piezometer or auger hole reading method.

CC: Dr. Devadason, Health Officer

Enclosures: 5-25-90 Letter to J.L. Hearn
4-29-97 Letter to Steve Walls
Wastewater and Health Article
The History of Plumbing Article
Septic Systems Handbook