BLACKWELL & ASSOCIATES, INC.
Professional Civil Engineers & Land Surveyors

B7752 October 23, 2013

Rick Atherton, Chairman
Nantucket Board of Selectmen
16 Broad Street
Nantucket, MA 02554

Re: Baxter Road – Tight Tank Alternative

Dear Mr. Chairman:

Due to the anticipated loss of portions of Baxter Road to erosion, we have examined alternatives to provide access and municipal services to the currently serviced properties along Baxter Road, north of Bayberry Lane. We are concerned with the statement made by the DPW Director to the Selectmen at your last meeting that tight tanks are being considered for wastewater service. There are several reasons why this is not a feasible alternative.

The traveled roadway is likely to fail first near #99 Baxter Road. The top of the seventy-foot high coastal bank is approximately forty-feet from the easterly edge of the asphalt in this area. When the sewer line is first compromised it will cut-off at least a dozen homes from service. As the erosion continues the length of failed roadway will extend north and south, thereby increasing the number of properties that need to be served by tight tanks and pump trucks.

Based on current assessor's records, there are 51-bedrooms served in these structures. Using a 310 CMR 15.00 (Title 5) wastewater standard of 110-gallons per bedroom per day, the total daily flow to the tight tanks is 5,610 gallons. The wastewater hauling trucks typically hold approximately 3,000-gallons resulting in at least two trips every day to serve the area. As the wastewater needs to be delivered to the Surfside Wastewater Treatment Facility for processing, will this be a municipally provided service, or will the homeowners need to contract individually? Do the locally licensed sewage haulers have the ability to serve this additional demand? The cost for disposal at the plant is currently twelve-cents per gallon for disposal, or about $360 per load, plus what has to be paid to

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the hauler. Will the cost be adjusted considering that their current charge per gallon for wastewater into the subsurface network is less than one-cent per gallon. The property at 110 Baxter Road has a total of seven bedrooms. If served by a 3,500-gallon tank it would need to be pumped every four days based on Title 5 flow criteria.

I have attached the section of Title 5 relevant to Tight Tanks. The purpose is to demonstrate that a variance from Title 5 standards would be needed, along with onerous requirements. Also, the regulations clearly state that when a sewer system becomes available, any person owning a tight tank shall connect to the sewer within 30 days and the tight tank system shall be abandoned. However in this case the Town is proposing moving in the opposite direction instead of making sewer service available.

A preferred alternative is to install a low-pressure sewer force main system as part of the alternative access plan. This system would connect to a sewer forcemain that will extend north from Meeting House Lane along Sankaty Road to the Sankaty Golf Club property. Individual grinder pump stations per property will be the responsibility of each owner.

Please feel free to contact me should you have any questions or wish to discuss this matter.

Sincerely,
Blackwell & Associates, Inc.
Arthur D. Gasbarro, PE, PLS, LEED AP

Cc By Email: Nantucket Board of Selectmen
Sarah F. Alger, P.C.
Patrick & Molly Ryan, Trustees
C. Elisabeth Gibson, Town Manager
Andrew Vorce, Director of Planning
Kara Buzanoski, DPW Director

Town of Nantucket G.I.S. – Sconset Lanes Concept Sketch

15.255: continued

(4) If required by the local Approving Authority, a minimum of one representative sample shall be taken from the in-place fill for a system serving a single family residence and tested for compliance with the grain size distribution specification. One soil test per pit per removal day shall be required for systems with design flows of 2,000 gpd or more.

(5) Where fill is required to replace unsuitable or impermeable soils, the excavation of the unsuitable material shall extend a minimum of five feet laterally in all directions beyond the outer perimeter of the soil absorption system to the depth of naturally occurring pervious material as required by 310 CMR 15.240 (soil absorption systems) and replaced with fill material meeting the specifications of 310 CMR 15.255(3).

(6) Prior to placement of the fill, which shall be stockpiled at the edge of the excavation and filled in gradually, the bottom surface of the excavation shall be scarified and relatively dry. Fill shall not be placed during rain or snow storms. If the groundwater elevation is above the elevation of the bottom of the excavation, the excavation shall be dewatered prior to placement of the fill.

15.260: Tight Tanks

(1) Prior to the installation of any tight tank, the facility owner shall submit to the Department the written approval of the local Approving Authority together with a copy of the complete application submitted to the local Approving Authority. The application shall be deemed approved by the Department if, within 30 days of receipt of a complete application the Department fails, in writing, to do one of the following:

(a) issue a written statement of deficiencies which may include a request for additional information; or

(b) grant a written approval, which may include any special conditions the department believes appropriate to protect public health, safety, or welfare or the environment; or

(c) deny the approval of the tight tank.

In the event the Department issues a written statement of deficiencies, the 30-day period for Department review shall commence upon the receipt of materials from the applicant in response to the Department's statement identifying deficiencies.

Approval of a tight tank may be granted only to eliminate a failed on-site system when no other feasible alternative to upgrade the system in accordance with 310 CMR 15.201 through 15.293 exists except as provided in 310 CMR 15.260(8). Tight tanks shall not be approved for new construction or for increased flow to existing systems except as approved by the Department for:

(a) boat waste pump-out facilities where no other feasible alternative exists; or

(b) to serve buildings necessary for the operation of a public water supply where it is not feasible to connect to a sewer or to construct a system in compliance with 310 CMR 15.000.

(2) The design of a tight tank shall conform to the following criteria:

(a) The tight tank shall be sized at a minimum of 500% of the system sewage design pursuant to 310 CMR 15.201 through 15.293 but in no case less than 2,000 gallons;

(b) plans for the tank shall be prepared, stamped and signed by a Massachusetts Registered Professional Engineer or Registered Sanitarian and submitted to the Department by the applicant for approval;

(c) audio and visual alarms shall be set to activate at 3/5 tank capacity in a suitably convenient location. Transmission of the alarm signal to a locus manned 24 hours per day may be required;

(d) the application for approval shall indicate the method and frequency of removal of the contents;

(e) the specific location and method of disposal of the contents shall be indicated and be in accordance with 310 CMR 15.401 through 15.422;

(f) the tight tank shall have at least one 24-inch diameter cast iron frame and cover at finished grade constructed so as to eliminate entrance of surface waters. Permanent suction piping may also be required;

(g) the tight tank shall be located so as to provide year-round access for pumping;

(h) a permit to install the tank shall be obtained from the local Approving Authority;

15.260: continued

(i) an operation and maintenance plan, acceptable to the local Approving Authority, shall be implemented which requires monitoring of the system to ensure proper operation and maintenance;
(j) the tight tank shall be waterproof and watertight and shall not be located below the water table without extensive testing to prove the integrity of the tank and design against uplift;
(k) aeration or other method of odor control may be required; and
(l) the tight tank shall be designed in compliance with the requirements for the construction of septic tanks in 310 CMR 15.226(1) through (4).

(3) The Department may require that monthly or less frequent reports be submitted to the local Approving Authority and/or the Department concerning operation and maintenance of the tank.

(4) No tight tank shall be utilized until written certification by a Massachusetts Registered Professional Engineer or Registered Sanitarian that the tight tank has been constructed and installed in accordance with the approved plan has been submitted to the Department and the local Approving Authority.

(5) When a sewer system becomes available, any person owning a tight tank shall connect to the sewer within 30 days and the tight tank system shall be abandoned in accordance with 310 CMR 15.354.

(6) Prior to the issuance of the Disposal System Construction permit for a tight tank, the facility owner shall record or register in the chain of title for the property served by the tight tank at the Registry of Deeds or the Land Registration Office, as applicable, a copy of the Department's written approval of the use of a tight tank, or when the Department has presumptively approved the use of a tight tank, a copy of the local Approving Authority's written approval.

(7) No tight tank shall be constructed in a velocity zone on a coastal beach, barrier beach, or dune, or in a regulatory floodway.

(8) The local Approving Authority or the Department may allow the use of a tight tank at an existing, seasonal-use residential facility as remedial upgrade of the failed system serving such facility. For the purposes of 310 CMR 15.260(8), a seasonal-use residential facility means a residential facility that is used six months or less during the calendar year. This approval may be renewed upon transfer of the property. The tight tank must comply with the provisions of 310 CMR 15.260. Prior to the issuance of the Certificate of Compliance by the local Approving Authority, the facility owner shall record or register in the chain of title for the property served by the tight tank at the Registry of Deeds or the Land Registration Office, as applicable, a deed restriction limiting the facility to seasonal residential use and to the approved design flow.

15.262: Greywater Systems

Greywater from residential, commercial and public facilities may be discharged or reused in accordance with the provisions of this section. For purposes of this section, public facilities shall include facilities owned or operated by a local political subdivision of the Commonwealth or an agency of the Commonwealth or federal government.

(1) Soil Absorption System for Greywater. When the total discharge to an on-site subsurface sewage disposal consists entirely of greywater as defined in 310 CMR 15.002 (Greywater), the following shall apply:
(a) The minimum soil absorption area for residential systems, as determined by the results of the site evaluation set forth in 310 CMR 15.100 through 15.107 and in accordance with the appropriate long-term acceptance rate criteria specified in 310 CMR 15.242, for design of a soil absorption system for new construction of a facility, or for upgrades to existing systems may be reduced by no more than 50%, provided, however, that for new construction, the owners of residential facilities shall demonstrate that a system in full compliance with 310 CMR 15.000 can be installed on the facility to serve the proposed design flow. Reductions for commercial and public facility systems shall be determined on a case-by-case basis as approved by the Department in accordance with 310 CMR 15.203(6).