



## CIVIL ENGINEERING ASSOCIATES, INC.

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October 16, 2012

Mr. Ira Allen, Westford Selectboard  
Westford Town Office  
1713 VT Route 128  
Westford, Vermont 05494

**Re: Spiller Property Wastewater Investigation**

Dear Mr. Allen:

On October 12, 2012 we met at the Spiller property located at 26 Common Road with yourself, Matt Wamsganz and Gary Estus to undertake an investigation of the on-site wastewater disposal potential of the property.

Site Description – This 1.7 acre parcel general slopes in the easterly direction towards the Brown's River. A ledge outcrop flanks the western boundary and there are a number of hillocks resulting in various high and low points on the parcel. The drilled well that serves the property is located off the southwest corner of the garage. The presence (and retention) of this well precludes the placement of any new wastewater disposal systems within 100-feet of the downhill side of the well.

Soil Mapping and System Siting - The Soil Conservation Service mapping shows that the property is comprised of a "Munson" based soil group which generally includes a thin layer of silty loam over silty clay. It also indicates that the Spring high groundwater table in these soils ranges from 0 to 12 inches below the surface. Under these conditions, a mound wastewater disposal system is the only type of system that could comply with the current State wastewater rules. In order to reduce the size of the system, we generally look to site these systems on areas of the property with the greatest amount of slope.

On-Site Investigation - In recognition of the setback requirements to the existing well and the presence of steeper uniform grades for the siting of a mound system, we conducted two test pits in the southwest quadrant of the property. The test pits showed that the soil was indeed comprised of a silt or silt loam topsoil over a silt or silty clay parent material. The depth to the seasonal (Spring) high groundwater table was found to be 6-inches below the surface. This shallow depth to groundwater precludes the use of this area for a new fully complying on-site wastewater disposal system.

Under further inspection, we noted that portions of the property had been regraded, primarily with the placement of fill along the east and southern property lines. In our efforts to determine if there were complying soils located under the fill (which could be removed), we discovered the location of a conventional wastewater disposal system placed on sand fill. We conducted additional test pitting to identify the extents of the system and the alignment of both the distribution trenches as well as the gravity line from the house. These are depicted on the attached site plan. The system was in good condition and appeared to be of relatively new construction. Soil staining associated with system use was observed in the bottom 6-inches of sand below the trenches.

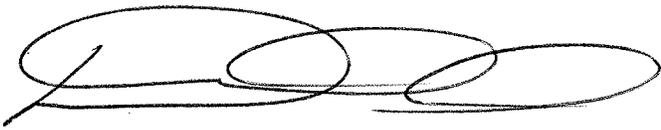
### **Summary of investigation and Opportunities**

- Based on the character of the soils (texture and topography), it does not appear that a new wastewater disposal system complying with the current State Wastewater disposal rules can be sited on this property.
- The existing wastewater disposal system is in good condition.
- The disposal capacity for the existing system will be based on the number of bedrooms in the house.
- The determination on the number of bedrooms can be completed by a reconciliation with the State's definition of a bedroom where it must have a window, closet and reasonable privacy; An alternative is to produce evidence through the Assessor's records which we understand indicates that this is a three bedroom home.
- For discussion purposes, using three bedrooms, the daily design flow from the house and therefore to the disposal system is  $3 \text{ bedrooms} \times 140 \text{ GPD/Bedroom} = 420 \text{ gallons per day}$ .

- If a new building were constructed (using low flow fixtures) the design flow for each full time employee would be 13.5 gallons per day resulting in a potential capacity of 31 employees.
- Meeting (conference) attendees are typically allocated a wastewater design flow of 5 gallons per person per day. We have seen permits issued by the Wastewater Management Division that recognize that many of the meetings held in municipal buildings are not full day affairs and that a prorating of design flows is appropriate.
- Using a maximum of 40 meeting attendees and a 4 hour meeting, the available design flows would result in:
  - $40 \text{ meeting attendees} \times 5 \text{ GPD/person} \times 4 \text{ hours/8hr day} = 100 \text{ GPD}$
- The remaining 320 GPD of design flows would enable up to 23 employees.

This completes our summary of our findings as it relates to the wastewater disposal potential of this property. If you should have any questions, please feel free to contact me at 864-2323 x310.

Respectfully,



David S. Marshall, P.E.  
Project Engineer

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Enclosures  
Site Plan

Cc: CEA File 12244 w/enclosures