

**DAVID E. ROSS
ASSOCIATES, INC.**

Report of Meeting

Attendees: Allan Hoffman, Sterling Board of Health
Robert Fraiser, Sterling Board of Health
Steven Damiano, Sterling Board of Health
Walter Irvine, R.S., Agent for the Sterling Board of Health
William Murray, L.A., David E. Ross Associates, Inc.
Cathy Di Grazia, Sterling Board of Selectmen & Building Needs Committee (partial attendance)

Report by: William Murray, L.A.

Date of Meeting: 05/09/00 **Time for Meeting:** 8:45 - 9:30PM±

Location of Meeting: Municipal Building, Sterling, MA.

Re: Project update to Board of Health for proposed expanded Fire Station and Old Town Hall Sewage Disposal System, Main Street, Sterling, MA.

1.1 The following information and notes are intended to represent the general points discussed and conclusions made (if any). This report of meeting is not intended to be a restatement of all areas of discussion; no quotations have been made.

1.2 The intent of this meeting was to present to the Sterling Board of Health, David E. Ross Associates, Inc status with regard to the testing, research and design for the proposed combined sewage disposal system to serve the expanded fire station and "old" town hall. The leach field area is proposed to be located in a portion of the Veteran's park behind the fire station.

2.0 Past Status Summary

Mr. Murray provided a summary of the past efforts, and the current status of the project, as described below: :

2.a Previously this office presented the status of the site, which included one suitable percolation test and two deep holes that indicate more than five feet of naturally occurring soils. We did not have two percolation test and we did not feel that we could achieve a second perc' test due to the usually high groundwater. At that time it was

David E. Ross Associates, Inc opinion that a variance to Title 5 for only one percolation test in a system was appropriate.

- 2.b The Board- in previous discussions -indicated that we were to research the status of adjacent sewage disposal systems and wells. The Board acknowledged at that time that any wells that may existing adjacent to the site would no longer be used for domestic use, as public water has been available to this area for a many years.
- 2.c The status of the site's location within a delineated Zone II to a Public Water Supply was previously undetermined. Additionally the Board wanted the location and status of the "Town Ditch Pipe" further clarified.

3.0 Update & Current Status

- 3.a *Percolation Test:* Since the last meeting with the Board of Health, we have achieved the second witnessed percolation test in an area suitable for the proposed primary leach field (or reserve, if necessary). We also obtained record drawings that were developed for the construction of the park and "town ditch." This set of plans was dated in 1961 and depicted existing topography. It was in the area indicated as being un-disturbed by the park's development.

- 3.b *Research abutting wells/SDS's:* We presented to the Board of Health a copy of the letter sent to the abutters via certified mail, return receipt. This letter requested abutters to call us and coordinate with us to identify the location of their various sewage disposal system components and/or wells. Further, the Board of Health agent provided us with record information from their files. On the whole the amount of gathered information was small, however the attempt was made.

Mr. Hoffman indicated that the Board of Health records must contain additional information and files, as he recalled permitting several of the abutting sewage disposal system repairs. We agreed to further research the Board of Health files to confirm the location(s) of various systems abutting the proposed leach field area.

- 3.c *Zone II Delineation and Town Ditch status/location:* David E. Ross Associates, Inc field survey located the "town ditch" and obtained copies of the original design plan. The base plan developed by this office and shown to the Board included the depiction of the ditch and adjacent and tributary drainage systems, including on the side streets.

On November 18, 1999 the DEP issued the delineated Zone II for the Sterling Municipal well. This site is contained within that delineated Zone II. Accordingly, the standards for a Nitrogen Sensitive Area (Title 5 - 310 CMR 15.215 & Water Supply - 310 CMR 322.21) will apply to any sewage disposal system design.

We presented to the Board an excerpt of the latest DEP Title 5 Map, Areas Affected by Title 5, dated April 4, 2000. This newly published map indicates the Zone II overlay district that applies to the site. It also outlines (depicts) the Watershed Protection Act Areas (350 CMR 11.00 , a.k.a. "Cohen Bill"). There are no wetland areas subject to the Watershed Protection Act as part of or immediately adjacent to the site, pursuant to this map.

- 3.d *Base Plan* - This office provided the Board a "Progress Print" of the base plan being developed for the site. This plan depicts the surveyed property lines, adjacent structures, drainage systems, paved and unpaved areas, the "town ditch" and other drainage systems in the area and other site features (monuments, utility poles, gazebo, etc...). This plan is also referenced in the design, See section 4, below.

4. Proposed Actions:

4.a Sewage Disposal System Design: The proposed sewage disposal system design presented to the Board is sized to accommodate the expanded Fire Station and the adaptive re-use of the Old Town Hall. These were the design goals set for David E. Ross Associates, Inc., and as recommended by the Board of Health at previous meetings. The design accommodates or incorporates the following.

1. Two percolation tests, (2 min/in. & 13 min/in.) the design is based upon a 15 min/in. design rate.
2. The maximum size of the system, including the credit for pre-treatment (150% for FAST system credit), is depicted on an attached document entitled, "Preliminary Septic System Design Calc's," dated 3-15-00. The maximum capacity of the site, using treatment to reduce nitrogen is: 1,868 gpd.

The summary of this document is that the system was sized to accommodate the proposed fire station footprint and uses and the adaptive re-use of the Old Town Hall as follows:

Old Town Hall Two stories of Office Space (5,300 sf @ 75gpd/1000 sf) = 397.5, Use 400 gpd.

Meeting Room – 70 person capacity (70 people @ 3gpd/person) = 210gpd, use 210 gpd.

Total flow = 610 gpd.

Proposed, Renovated Fire Station:

1st Floor

Vehicle Bays do not generate sanitary flows, floor drains flow to tight-tank only.

Turn-out and wash-down flow to tight-tank, not leach field and do not generate sanitary flows

Office, 1st floor (1,375 sf @ 75 gpd/1000sf) = 103gpd.

2nd Floor:

Storage & hose tower does not generate sanitary flows

Office, 2nd floor (1,163 sf @ 75gpd/1000sf) = 87gpd

Showers & Lockers (37 lockers @ 20gpd/locker) = 740 gpd.

Meeting space (75 people @ 3gpd/person) = 225gpd.

Total flow (2nd floor) = 1052gpd

Total Design Flow, Fire Station = 1155gpd

Total Facility Design Flow (to treatment & leach field) = 610+1155 = 1765 gpd.

3. The proposed design utilizes a Fixed Activated Sludge Treatment (FAST) System for de-nitrification. Currently the system is provisionally approved for general use for this type of facility. This system uses a fan for aeration in a single unit to digest the wastewater and provide a consistent 70% nitrogen removal. It is an advanced treatment system using few moving parts and has low maintenance requirements. It is capable of accommodating varying flow regimes with uniform treatment levels.

We will, once the permitting process is more advanced, provide the Board of Health with copies of the manufacturer's literature, technical manuals and DEP certificates of approval. It is the manufacturer's anticipation that the system will be fully approved by DEP for General Use in the next year to one and one-half years, roughly in the time-span that the proposed renovations to the Fire Station will occur.

- 4.b *Local Regulation Conformance:* The proposed system will require only one variance from the Town of Sterling's Regulations.

1. *Section IV – Shared System:* We will ask the Board to waive the requirements of this section as this proposed facility is intended to replace those currently in-use by the "Old town hall and fire station. As such, it will be a Shared System.
2. We will also seek, but do not necessarily require, the following waivers:
 - a. *Section III, 6.c. – Reserve Area in fill.* As explained to this office the intent of this section is to ensure that the fill for the reserve will be available, should it become required. In this case the owner of the facility will be the Town of Shirley under the direction of that municipal corporation. It is unlikely that the Town will not have the resources to develop the reserve, if needed. Further, the impact of the proposed system to the abutters in particular and on the neighborhood and park, in general, will be lessened if the reserve area is not developed.
 - b. *Section III, 4.a – Distance to Groundwater –* the design is based upon a six foot offset to groundwater. We do not believe that the site is affected by the Town's Zoning District as described in the Sterling Watershed Protection District (Section 4.6, paragraph J – Aquifer and Water Resources Protection by-law. As such it is our opinion, with the Board of Health's general agreement, that this section does not apply. Accordingly, no variance or waiver is required and the design offset is 5' to estimated or observed seasonal high groundwater.

5.0 Proposed Actions

- 5.a *Proposed Action at time of Meeting:* At the time of this meeting, this office had been tasked to proceed with the design and permitting of the Fire Station and Town Hall treatment system and design. We told the Board of Health that we anticipated submitting, for local approval, a design in the next 30-60 days. This design would incorporate the proposed treatment plant along with the information referenced above. As part of the development of this design, this office would again research the records of the Sterling Board of Health to ensure that all applicable record information is obtained and depicted on the plans.

The permitting for this facility is a multi-step process. As the proposed system is provisionally approved and it is in a Nitrogen Sensitive Area, the second approval step is through DEP's Division of Water Pollution Control.

- 5.b *Revised Actions:* Since the time of the meeting, the Building Needs Committee has asked this office to delay the design and permitting of the proposed shared system. This due, in part, to the following reasons:
1. This office has informed the Building Needs Committee that it is our opinion that a Sewage Disposal System (SDS) can technically be placed in a portion of the Veteran's Park. The Committee recognizes that there are other factors, other than the technical factors, that apply to the use of this area which need to be addressed further.
 2. The manufacturer of the proposed treatment system (FAST) has stated that they anticipate general approval from the DEP in the upcoming months. This will avoid the extensive sampling and monitoring that is typically required with a provisionally approved treatment system.
 3. The construction for the renovation and addition to the Fire Station is step two of a two phased project. The construction and relocation of the Police Department to a new facility is required first. As such a minor delay in timing will not negatively impact the overall project.
 4. Finally, the design and permitting associated for this type of facility is usually part of the overall building development project and is assigned to an Architect to coordinate all aspects of the project. Delaying the design/development process will allow it to coordinate more closely with the

Note: The text and information provided above is intended to constitute a summary of the items discussed and conclusions drawn (if any). Unless noted, no direct quotations or statements are provided for within this document. If upon review any discrepancies are noted, please contact the author to permit revisions, as soon as is possible.