

**BOARD OF HEALTH**  
**MINUTES OF MEETING**  
**July 27, 2010**

The Board of Health held a meeting on Tuesday, July 27, 2010 at 7:00 p.m. at the Hildreth House. Members present were Jack Spero and Lorin Johnson. Also present Shanna Large (Clerk), Ira Grossman, RS, Carter Scott (Transformations, Inc), Jeff Richards (Transformations, Inc), and Pio Lombardo (Lombardo Associates, Inc.).

The Meeting was called to order at 7:00 p.m. Business was as follows:

**Pio Lombardo of R. Wilson and Associates for Transformations Project on Stow Road- Discussion**

Carter Scott and Pio Lombardo came before the Board to discuss the project on Stow Road. Carter updated the Board on the energy efficiency of the homes he is hoping to construct on the property. Pio gave a powerpoint presentation (see attachment of slides) regarding the proposed Septic Disposal System for the homes on the property.

The Board questioned Pio regarding the proposed drip irrigation system and expressed their concerns in using this type of dispersal system. The Board stated that they have been talking to Ira about this type of system and have reviewed quite a bit of material with regards to drip systems. At this time they are not willing to lift their moratorium on these systems for the town of Harvard. After a lengthy discussion regarding the drip system, the Board told Pio and Carter they are welcome to submit this type of system to be reviewed but they continue to have issues and concerns regarding its performance. The Board discussed with the engineer the aesthetics and performance of a recirculating sand filter and whether this would be a better option for the property. The Board will not guarantee they will grant a permit for the drip irrigation system but if more information was provided, the Board would be willing to review it.

**DEP letter for Russo, 198 & 200 Ayer Road**

The Board reviewed the letter from DEP for the above property. According to some of the statements and questions being addressed in the letter, the permit for lot 3 may be considered void. The Board decided to invite Lou in to a future meeting to discuss these issues and concerns they have regarding the permit for lot 3 at his convenience

**Air Quality Testing for HES**

The Board reviewed the email from Keith Cheveralls regarding the reduction in Air Quality Testing at Hildreth Elementary School. Jack Spero made a motion to accept the proposal for reduction in air quality testing from four times a year to two times a year. If any abnormal test results were found they retained the right to change the testing to a more frequent basis. Lorin Johnson seconded. The vote was 2-0 to approve.

### **Board of Selectmen Goals for upcoming year**

The Board reviewed the letter regarding the Board of Selectmen Goals for the upcoming year. They will come up with agenda items for the September meeting and submit them to the Selectmen for discussion.

### **State Ethics request for Hirsch Violations**

The Board decided to table this discussion until they received a copy of the compliant from the State Ethics Board.

### **Permits signed-**

**Dennis & Kathleen Bunnell, 17 Bowers Road** – Component replacements for existing dwelling. Installation of a new 1500 gallon septic tank and distribution box.

**Firefly Farm LLC, 2 Brown Road** – Upgrade approval for new five single family dwelling. Installation of jet tank, 1000 gallon dosing chamber, and distribution field.

**Currie, 16 Westcott Road Lot C** – Single component replacement for existing dwelling. Installation of a distribution box.

### **Minutes**

Jack Spero made a motion to approve the minutes of May 11, 2010, June 8, 2010 as presented and table the July 13, 2010 minutes. Lorin Johnson seconded. The vote was 2-0 to approve.

Jack Spero made a motion to adjourn the meeting at 8:40 pm. Lorin Johnson seconded. The vote was 2-0 to approve.

Respectfully submitted,

Shanna Large, Clerk

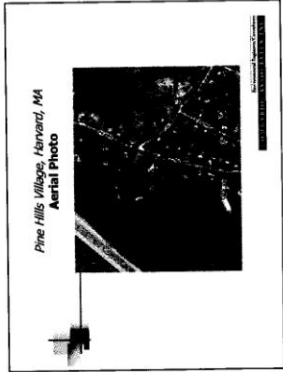
Documents reviewed at meeting:

1. Powerpoint presentation from Pio Lombardo (see attached)
2. Email from Keith Cheveralls regarding air quality testing change (see attached)

*Pine Hills Village, Harvard, MA*  
**Wastewater Management Plan Components**

Pine Hills Village proposed development consists of:

- 17 buildings that total 58 bedrooms
- Buildings are clustered into 5 lots, each with septic tank-drainfield system
- Located within Zone II of the proposed public water supply
- Design flow is 6,600 gpd, based on Title V requirements.



**Harvard Board of Health**

**Wastewater Management System**  
 Pine Hills Village, Harvard, MA

July 27, 2010

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*Pine Hills Village, Harvard, MA*  
**Wastewater Management System**

**Waterloo Biofilter Design Criteria**

BOD	< 150 mg/L
TSS	< 75 mg/L
TN	< 20 mg/L

**Nitrova™ Filter Design Criteria**

BOD	< 30 mg/L
TSS	< 30 mg/L
TN	< 20 mg/L

*Pine Hills Village, Harvard, MA*  
**Wastewater Management Process Flow**

- Proposed Wastewater Treatment System Includes the Waterloo Biofilter, Which Exceeds the NSF Expirancy Requirement.
- System Also Includes the Nitrova™ Nitrogen Reduction Filter that Further Reduces Effluent Nitrogen to TN < 10 mg/L.
- System Effluent is Largely Devoid of Nutrients that Contribute to Biomass Formation.
- Both the Biofilter and Dig. Infiltration Systems are Approved for General Use in the State of Massachusetts.

*Pine Hills Village, Harvard, MA*  
**Wastewater Management System**

**Design flow = 6,600 gpd,**  
 based on Title V requirements

Parameter	Design Value	Standard
Flow	6,600 gpd	Title V
BOD	150 mg/L	NSF 40
TSS	75 mg/L	NSF 40
TN	20 mg/L	NSF 40
Ammonia	10 mg/L	NSF 40
Phosphorus	5 mg/L	NSF 40
Chloride	200 mg/L	NSF 40
Sulfide	10 mg/L	NSF 40
Hydrogen Sulfide	10 mg/L	NSF 40
Iron	10 mg/L	NSF 40
Copper	1.0 mg/L	NSF 40
Zinc	1.0 mg/L	NSF 40
Nickel	0.1 mg/L	NSF 40
Lead	0.1 mg/L	NSF 40
Cadmium	0.01 mg/L	NSF 40
Mercury	0.01 mg/L	NSF 40
Fluoride	1.0 mg/L	NSF 40
Selenium	0.01 mg/L	NSF 40
Chromium	0.1 mg/L	NSF 40
Manganese	0.1 mg/L	NSF 40
Vanadium	0.01 mg/L	NSF 40
Antimony	0.01 mg/L	NSF 40
Barium	1.0 mg/L	NSF 40
Boron	1.0 mg/L	NSF 40
Cobalt	0.1 mg/L	NSF 40
Strontium	1.0 mg/L	NSF 40
Thallium	0.1 mg/L	NSF 40
Uranium	0.01 mg/L	NSF 40
Other Metals	0.1 mg/L	NSF 40
Other Inorganics	0.1 mg/L	NSF 40
Other Organics	0.1 mg/L	NSF 40
Other	0.1 mg/L	NSF 40

**Example Residential Cluster Wastewater Systems**

**Residential & Light Commercial Nitrex™ Wastewater System**  
**Average Effluent Total Nitrogen 3.25 mg/L**

- Mashpee, MA

**10,000 gpd Residential Development**  
**Average Effluent Total Nitrogen < 2.0 mg/L**

- Eastham, MA

**Individual Onsite Wastewater Systems**

**(3) Residential Retrofit Installations – Maryland**  
**Producing Effluent TN < 3 mg/l**

**Residential Nitrex™ Wastewater System**

- Harvard, MA
- 650 gpd

- Very high strength due to very low water use
- Influent TN is 120 mg/l
- Adjustments were required due to high strength achieving desired results.
- The Hills Village system will incorporate features that will allow for future expansion to meet base and typical residential domestic wastewater.

### Drip Irrigation Overview

- Drip irrigation systems are approved for General Use in the State of Massachusetts, and are designed in strict accordance with DSD and DWP guidelines.
- Standard "Tilt-V" mounted systems for this site will require over 13,000 CT of fill.
- Other Non-Drip Alternatives will require approximately 8,000 CT of fill.
- The Drip Systems will require less than 2,000 CT of fill.
- Drip systems are blended into the landscape and more aesthetically pleasing.
- Drip System for this site will be designed to absorb typical 30-70% wastewater, concentrations, decreasing any chance of nutrient formation.

### Lombardo Associates, Inc. Engineered Systems Summary

- 200+ septic systems
- 20+ cluster systems ranging in size from 2 to 200 households
- 0.9 MGD innovative wastewater treatment system using constructed wetlands and UV light for disinfection
- Waquoit Bay Nitrex™ Permeable Reactive Barriers

### Major LAI Accomplishments

- LAI has authored or co-authored numerous U.S. EPA Manuals on alternative and decentralized wastewater systems, and include:
- USPA Manual Constructed Wetlands Treatment of Municipal Wastewaters (EPA/600/R-99/010), 2000
  - USPA Manual Alternative Wastewater Management Design Manual, 2001
  - USPA Manual Design & Construction of Land (On)site on Small Community Wastewater Management Systems? (EPA 600/R-97/008), 1997
  - USPA Storage Treatment and Disposal Manual (EPA/600/R-84/089)
  - USPA Wastewater Management Manual for Small Communities (EPA 600/R-84-088)
  - Model Wastewater Management Facility Plan, 1980

### LAI Accomplishments (cont'd)

- Engineer of Record for over \$200 million of innovative wastewater and water projects
- Cluster Wastewater Systems Planning Handbook, 2004
- Phosphorus Geochemistry in Septic Tanks, Soil Absorption Systems and Groundwater, 2006

### Questions / Discussion

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Document 2

To: Board of Health

Gentlemen,

I spoke with David Scarchilli of OccuHealth this afternoon about the idea of moving to a semi-annual air quality testing regime at HES rather than the current quarterly testing cycle.

David was supportive of scaling down to a semi-annual schedule and recommends that the most appropriate time for such testing would be during heating season when all doors and windows are typically closed. He suggested November and February as likely good months for the test results.

At David's further suggestion I have included him as a copy to this email in that it may help expedite answers to any residual question the Board may have.

I look forward to your comments in due course and in the meantime, on behalf of the schools, I thank you for your time and consideration at last night's meeting.

Yours sincerely

Keith Cheveralls

Chairman – Harvard Public School Committee.